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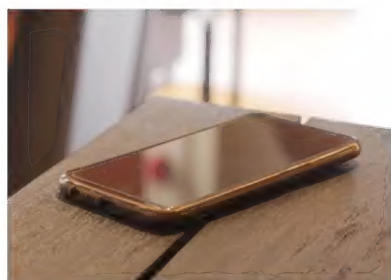
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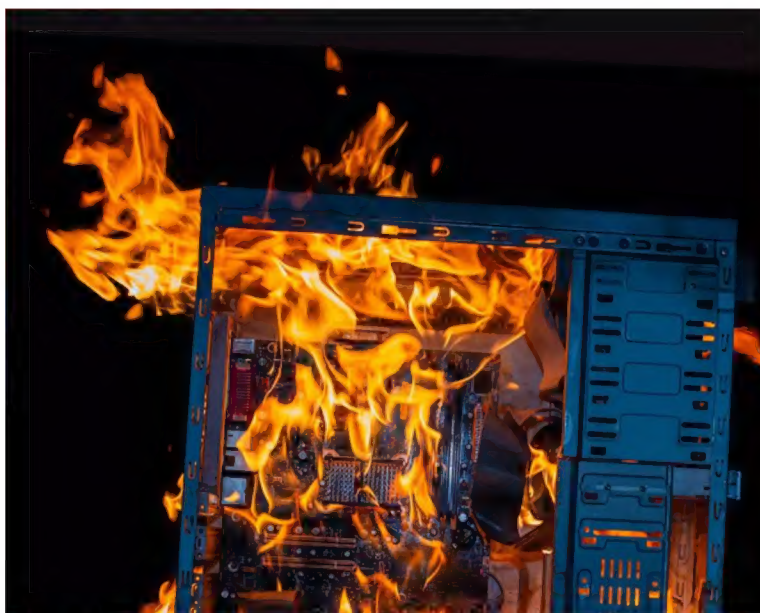


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AGING BRINGS DISCOVERY, **NOT DISORIENT-** **TATION.**

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Google's search business officially ruled as illegal monopoly

Google will likely appeal, but until then it must endure bearing a black mark in the eyes of the public. **BY MARK HACHMAN**

In a landmark decision, a U.S. district court recently found Google's search and advertising business to be an illegal monopoly. But no sanctions were handed down, presumably leaving that open for future determination.

For now, then, nothing will change. But the 277-page decision (plus appendices)

clearly labels Google as an illegal monopolist in violation of Section 2 of the Sherman Antitrust Act (fave.co/4fjd5c6). Google said it would appeal the decision.

The court case began in December 2020 and has moved in fits and starts ever since, over a nine-week bench trial, over 3,500 exhibits, and evidence that reached into the petabytes,

the court wrote. Plaintiffs included the U.S. government and the state of Colorado.

"After having carefully considered and weighed the witness testimony and evidence, the court reaches the following conclusion: Google is a monopolist, and it has acted as one to maintain its monopoly. It has violated Section 2 of the Sherman Act."

U.S. District Judge Amit P. Mehta

The court was asked whether or not Google had illegally maintained a monopoly in both its general search experience as well as its related textual advertising business. (Achieving a monopoly is not illegal, but using your market power to maintain it is.)

The court found that it had, pointing to the anticompetitive deals that Google struck with Apple and other vendors to be the default search engine on those platforms. But the court also declined to rule against Google in certain complaints, including finding that Google lacks monopoly power in the market for search ads. In part, the case dragged on because Mehta wrote that he was "taken aback by the lengths to which Google goes to avoid creating a paper trail for regulators and litigants."


"Any company that puts the onus on its employees to identify and preserve relevant evidence does so at its own peril," he wrote. "Google avoided sanctions in this case. It may not be so lucky in the next one."

The decision could have an effect on whether companies like Apple might be required to offer consumers more options in their choice of search providers, and could also have an impact on the revenue that comes from mobile advertising. But that's all up to follow-up rulings and enforcement.

Right now, the harshest measures are in the court of public opinion. Barring a successful appeal, Google's search business is now officially ruled an illegal monopoly.

Google plans to appeal.

"This decision recognizes that Google offers the best search engine, but concludes that we shouldn't be allowed to make it easily available," Google said in a statement attributed to Kent Walker, president of global affairs.

"We appreciate the court's finding that Google is 'the industry's highest quality search engine, which has earned Google the trust of hundreds of millions of daily users,' that Google 'has long been the best search engine, particularly on mobile devices,' 'has continued to innovate in search' and that 'Apple and Mozilla occasionally assess Google's search quality relative to its rivals and find Google's to be superior,'" Walker said. "Given this, and that people are increasingly looking for information in more and more ways, we plan to appeal. As this process continues, we will remain focused on making products that people find helpful and easy to use." 

Intel's crashing CPU nightmare, explained

Intel's rapidly dying CPUs mark the biggest hardware scandal since the Pentium FDIV bug. **BY MICHAEL SCHMELZLE**



Intel's 13th- and 14th-generation Core desktop CPUs have been the subject of controversy for months now, with instability and performance issues resulting in crashes and permanent damage for many users.

Intel has been investigating the problem for a while (fave.co/4fN3eIk) with regular

promises of a fix, and we now know that all 13th- and 14th-generation Intel Core processors with a Thermal Design Power (TDP) of 65 watts or more can cause your PC to crash and blue screen.

According to Intel, the thermal and power protection mechanisms in the BIOS/UEFI were disabled by motherboard manufacturers



The true source of Intel's CPUs crashes is flawed processor microcode.

at the factory to allow Core processors to run at high voltages and frequencies for extended periods of time, and this contributes to the issue. Motherboard vendors rolled out BIOS updates to include an Intel Default Settings option, but the true source of Intel's CPUs crashes is flawed processor microcode (fave.co/4cxGRxE).

"Intel has determined that elevated operating voltage is a primary cause of the instability issues in some 13th and 14th Gen desktop processors," an Intel spokesman told PCWorld. "Analysis of returned processors confirms that the elevated operating voltage is stemming from a microcode algorithm resulting in incorrect voltage requests to the processor."

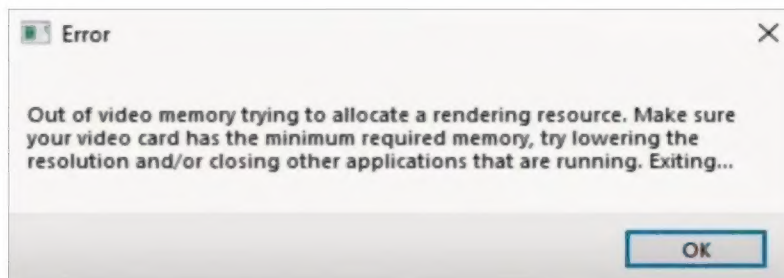
Here's everything you need to know.

HOW DO YOU KNOW IF YOU'RE AFFECTED?

Application crashes, blue screens, system crashes—these are all symptoms of critical PC issues, but they're usually vague and infrequent. Not in this case, though—the typical error message for affected Intel CPUs often looks like the below screenshot. The

error message apparently indicates a problem with the graphics card, but in reality the CPU is the culprit, thanks to the flawed microcode algorithm.

The microcode is the CPU firmware that defines important parameters, such as how much voltage the CPU requires from the motherboard. And this is exactly where the problem lies, because the voltage specifications are apparently too high. According to Intel, a too-high CPU voltage supply can occur not just under load, but also when idle.



Intel's error message.

Intel Recommendations: 'Intel Default Settings'				
Parameter / Feature	Value			Notes
CEP (Current Excursion Protection)	Enable			
eTVB (Enhanced Thermal Velocity Boost)	Enable			
TVB (Thermal Velocity Boost)	Enable			
TVB Voltage Optimizations	Enable			
ICCMAX Unlimited Bit	Disable			
TJMAX Offset	0			
C-states	Enable			
AC Load Line	Varies, see notes			AC Load Line must match the design target, with a maximum value of 1.1mOhm. DC Load Line must be equal to AC Load Line.
DC Load Line	Must match AC Load Line			Lower values are possible if they match board design and VR capabilities. VR and BIOS Load Line values must match.
Power Delivery Profiles - Core i9-13900K/KF, Core i9-14900K/KF				Use the highest power delivery profile compatible with your motherboard
Parameter / Feature	Baseline*	Performance	Extreme	
ICCMAX	N/A	307A	400A	Never exceed 400A
ICCMAX_App	N/A	245A	320A	
Power Limit 1 (PL1)	N/A	125W	253W	
Power Limit 2 (PL2)	N/A	253W	253W	
Power Limit 4 (PL4)	N/A	380W	380W	
Power Delivery Profiles - Core i9-13900KS, Core i9-14900KS				Use the highest power delivery profile compatible with your motherboard
Parameter / Feature	Baseline*	Performance	Extreme	
ICCMAX	N/A	307A	400A	Never exceed 400A
ICCMAX_App	N/A	245A	320A	
Power Limit 1 (PL1)	N/A	253W	320W	
Power Limit 2 (PL2)	N/A	253W	320W	
Power Limit 4 (PL4)	N/A	380W	550W	

* Baseline Power Delivery Profiles are not recommended for 13th and 14th Gen K SKU Processors

Intel's official recommended BIOS/UEFI settings for stable operation of 13th- and 14th-generation CPUs.

HOW DOES IT IMPACT YOUR CPU?

Tech expert Roman "der8auer" Hartung (fave.co/4dMAJTp) analyzed the consequences this can have for your own Intel CPU. With the help of an electron microscope, his material analysis found an unusually high level of electromigration.

Put simply, electromigration means that individual atoms can detach from their substrate when current flows. These atoms can then cause damage and defects at some point, such as making insulating layers conductive and vice versa. To make matters worse, electromigration increases as temperature rises, so inadequate CPU cooling can exacerbate it. Electromigration occurs in all electrical devices, but it's especially severe in 13th- and 14th-generation Intel Core processors, which are designed to last an

average of at least ten years. It's also why these errors first started cropping up in companies that had these CPUs running 24/7, such as game server centers.

WHAT SHOULD YOU DO IF YOU'RE AFFECTED?

If you're familiar with the BIOS and you're willing to tinker with BIOS/UEFI settings, you should first start using Intel's recommended settings to reduce premature aging of your CPU. You can manually tune your processor (fave.co/4doceMs) to match the settings below, or look for an updated BIOS on your specific motherboard's support page that adds Intel Default Settings as a power option (it may even be the default).

You can further reduce potential CPU damage by improving cooling performance,

such as with a more powerful cooler or better housing ventilation.

Intel released its first attempt at a microcode update in mid-August, which aims to mitigate the voltage issues going forward (though notably, it can't fix any damage already caused). You should be able to download the appropriate BIOS update from your motherboard manufacturer. *Absolutely* keep checking back for further updates as Intel is still working on this issue and the initial update appears to be more of a beta than a final fix. (We'll be monitoring the issue and informing our readers as soon as possible.)

WHAT IS INTEL DOING FOR AFFECTED USERS?

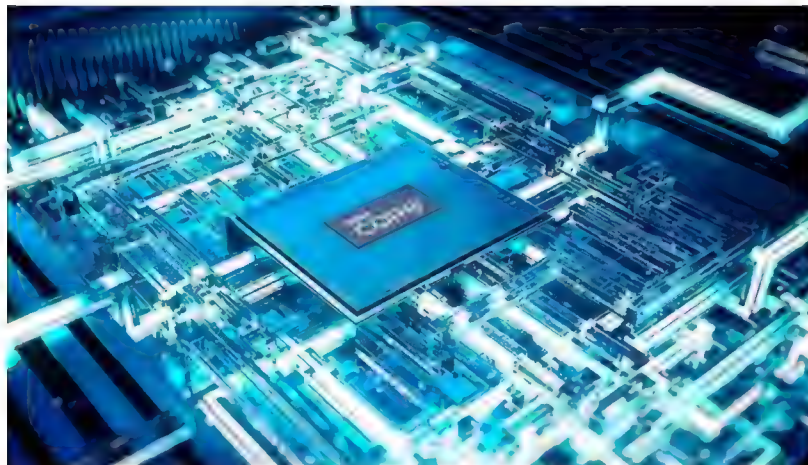
The bottom line is that if you have a 13th- or 14th-generation Intel Core CPU with a TDP of 65 watts—that includes all Intel CPUs from

13400K/F and 14400K/F and upward—then your processor has been operating with this faulty microcode up to now.

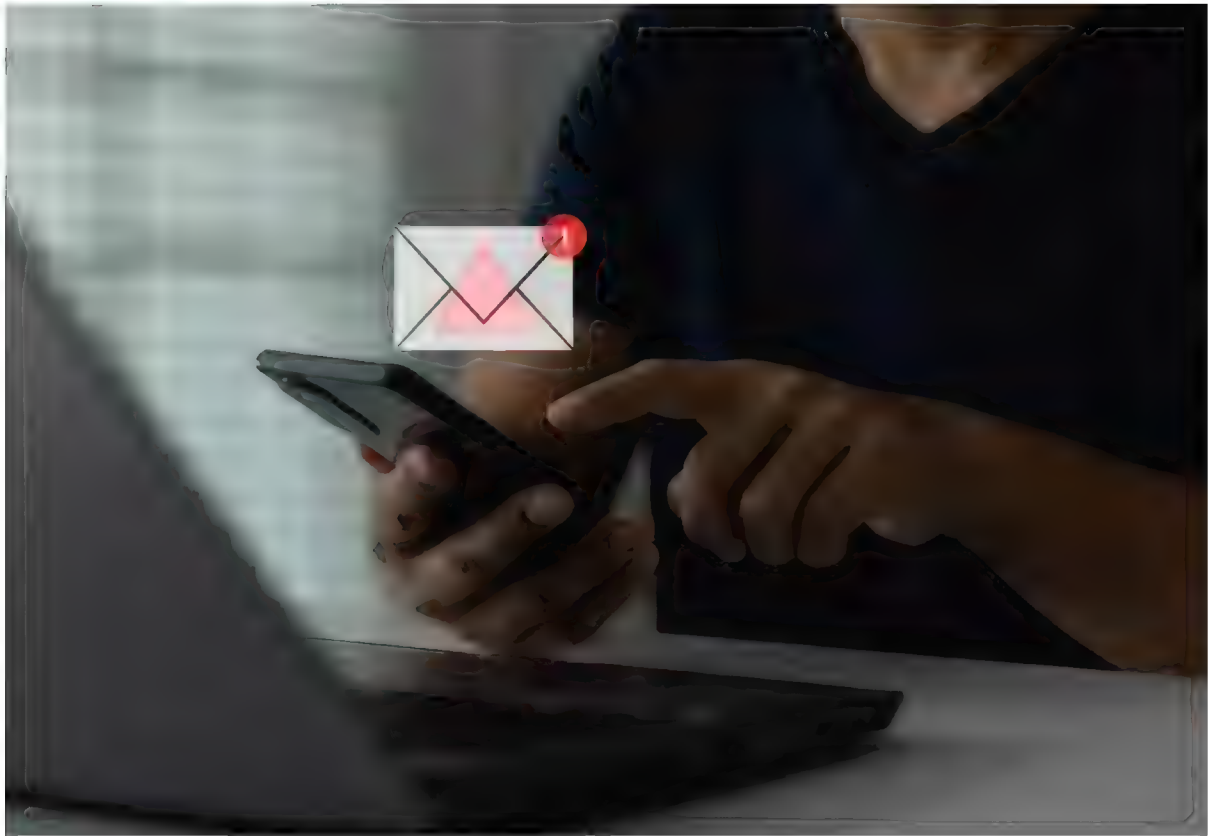
Depending on how often and how heavily you push your CPU, the Core processor could have aged so much that it may not even last the warranty period. (Intel grants a 3-year warranty for boxed processors and a 2-year one for CPUs without sales packaging.) And Intel has confirmed that if this issue already causes your processor to crash, the updated microcode released in August will *not* repair the issue—so you'll need to file a claim to get things fixed.

"Intel is committed to making this right with our customers, and we continue asking any customers currently experiencing instability issues on their Intel Core 13th/14th Gen desktop processors to reach out to Intel Customer Support for further assistance," the company said in its formal statement.

If your CPU is already so degraded that you regularly receive the error message shown earlier, contact Intel customer support (fave.co/3M6l98c) straight away and insist on a replacement. Intel has (so far) ruled out a sales stop or even a recall, though the company has extended the warranty for affected Core processors (fave.co/4fLtnRK) by an additional two years. 🔌



If you have a 13th- or 14th-gen Intel Core CPU with a TDP of 65 watts, then your processor has been operating with this faulty microcode.



Beware of this new phishing scam that could arrive in your mailbox

Phishing scams don't just happen on the internet anymore. **BY LAURA PIPPIG**

If you think phishing scams only happen over the internet, you'd be dead wrong. In fact, there are many different types of phishing scams (fave.co/3Ar3CWG), including a recent type that occurs via traditional mail.

In Germany, the State Office of Criminal Investigation of Lower Saxony (fave.co/3WEV3yQ) recently warned people about

phishing attempts via mail in the form of fake letters that purport to come from their banks.

Some of these phishing letters look surprisingly close to the real deal, and some even contain personalized information. Complete with official logos, they give the impression that they're authentic.

Known cases have impersonated Commerzbank and Deutsche Bank, but any

bank can be imitated—and it can happen all around the globe. Here's what you need to look out for.

HOW THIS MAIL PHISHING SCAM WORKS

The phishing letter informs you of “an important matter relating to [your] account,” which can involve anything from keeping your data updated to scary warnings or threats that arouse panic.

Each letter is accompanied by a QR code and you're told to scan it if you want to move forward with a solution. You're led to think that this QR code is a convenient way to visit the bank's website.


But if you scan the code, you end up on a fake website that looks like the real website—and if you enter your details there, such as your login credentials, then your details will end up in the hands of the hackers and fraudsters who sent you the phishing letter.

WHAT YOU SHOULD DO TO STAY SAFE

The German authorities recommend being particularly careful and suspicious of unexpected letters. When in doubt, you should call your bank to double-check whether the letter is legitimate.

Never scan unsolicited QR codes from anyone without verifying that they're

trustworthy. Deactivate all options on your phone to “open links immediately” when scanning QR codes. This way, you can scan a QR code and see the destination URL before visiting, which can help you avoid deceptive websites masquerading as genuine.

If you end up falling for a QR code phishing scam (also called quishing scams), you should immediately inform your account provider (bank, credit card, online service) and have your account access blocked before changing all your passwords and restoring access. 



Some phishing letters have purported to be from Deutsche Bank.

Windows 11 strikes again with pop-up that can't be disabled

It's enough that we have to deal with Microsoft's pop-ups. But when they can't be turned off? That's just unacceptable. **BY LAURA PIPPIG**



Windows 11's ads are out of control (fave.co/3K1AEhv). Microsoft is always finding new ways to disrupt and annoy users—and this time, it comes in the form of an unavoidable pop-up notification.

Even while most people are still upset by constant Windows 11 update notifications (fave.co/46hj8s), Windows 11 has recently started displaying more and more information about cloud backups. Specifically, Windows

users are being notified that their systems aren't backed up with the built-in Windows backup solution. A corresponding message appears with the advice that it's best to make backups so that all data is stored "in case something happens to the PC."

It almost reads like an indirect threat, but Microsoft is actually just pointing out the option to store file backups on its own OneDrive cloud service. And it's also advertising more storage space.

MORE CLOUD STORAGE COMES AT A PRICE

The free version of OneDrive gives you 5GB of storage space for your backups. However, this space isn't much—it's quickly used up if you back up all your files as Microsoft would apparently like you to do.

For \$2 per month, you can expand that to 100GB of storage space, which is far more reasonable for backups. And if you have a *lot* of data? You can get 1TB of space for \$7 per month. (All plans have discounted pricing if you pay annually rather than monthly.)

It's obvious Microsoft is pushing users to OneDrive, since you can't disable this cloud backup notification. The only way to make it go away is to use the feature.

Sure, you can click the notification and dismiss it for a time...but it will show up again



OneDrive offers 5GB of free storage space.

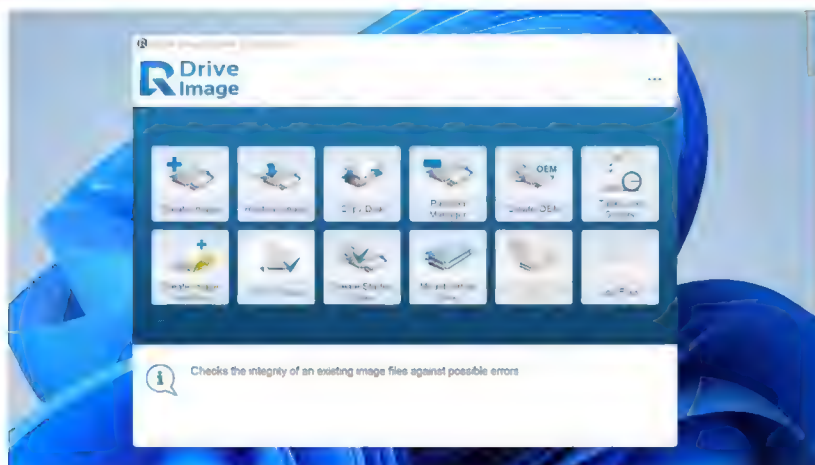
soon enough. This isn't the first time Microsoft has annoyed users with ads and reminders, and it won't be the last.

WINDOWS BACKUP ISN'T BAD, BUT...

Generally speaking, it's not a bad idea to back up your most important data with Windows Backup (fave.co/3X61exi).

However, you don't *have* to use Microsoft's OneDrive for your Windows system.

There are also plenty of free backup software options that can back up your files offline without needing cloud storage. Check out our favorite picks for Windows backup software (fave.co/3nINb3Z) to learn more. 



There are plenty of free backup software options, such as R-Drive Image (pictured).



Burglars are jamming Wi-Fi security cameras — here's what you can do

Tech-savvy thieves are finding new ways to circumvent wireless networked security cameras like Ring and Nest. **BY MICHAEL CRIDER**

A Wi-Fi-connected security camera is an easy and technologically simple way to watch your home and give yourself a little peace of mind...or maybe you just like knowing the moment your Amazon packages arrive. Honestly, it's mostly the second thing.

But while Wi-Fi security cameras are meant to equip homeowners and apartment dwellers with thief-detering measures, thieves are now using tech to even the playing field.

According to a tweet sent out by the Los Angeles Police Department's Wilshire division (fave.co/3X64YPJ); spotted by Tom's

Hardware, fave.co/4cumAJt), a small band of burglars is using Wi-Fi jamming devices to nullify wireless security cameras before breaking and entering.

The thieves seem to be well above the level of your typical smash-and-grab job. They have lookout teams, they enter through the second story, and they go for small, high-value items like jewelry and designer purses.


Wireless signal jammers are illegal in the United States. Wireless bands are tightly regulated and the FCC doesn't allow any consumer device to intentionally disrupt radio waves from other devices. Similar laws are in place in most other countries.

But signal jammers are electronically simple and relatively easy to build or buy from less-than-scrupulous sources.

The cops are suggesting the usual precautions: Don't tell anyone you're going on vacation, look out for suspicious vehicles, and so forth. But they're also suggesting that homeowners use old-fashioned, wired sets of security cameras that require more elaborate installations and extra hardware.

I think that's overkill, especially if this group of thieves is specifically targeting people who are away from their homes. The point of the Wi-Fi jammer seems to be knocking out active surveillance, which can alert police within a few seconds of spotting a break-in. And if they're smart enough to use Wi-Fi jammers, they're smart enough to use alternate means of avoiding detection—like cutting power to the entire house, thus nullifying the advantages of a wired camera system.

The police also suggest adding a padlock to your electrical circuit box, but that's not going to stop someone with \$30 bolt cutters.

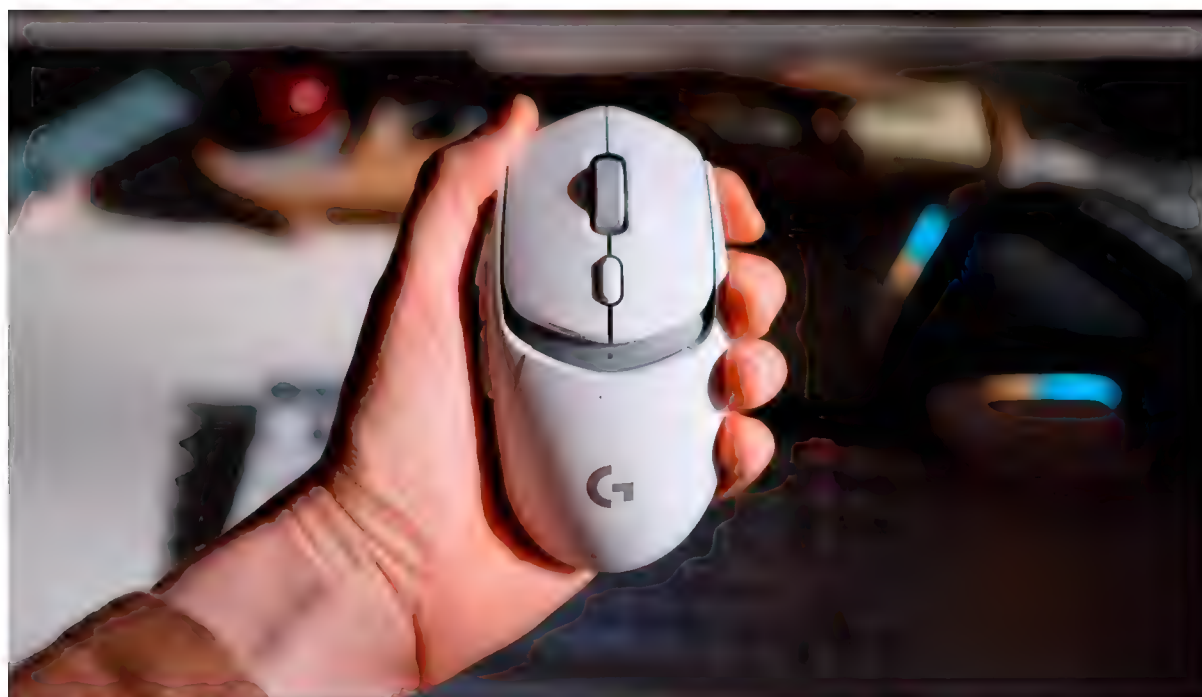
My point is that if someone wants to break into your home while you're away, there's not a lot you can do to stop them. But if you want extra peace of mind without the expense of a full wired camera system, get a camera with built-in storage and a battery, like Eufy's solar-powered SoloCam series (fave.co/4dFi5wu). As long as it isn't within reach and easily accessible, it should provide you with a visual record of any break-in. 



If you want peace of mind, get a camera like Eufy's solar-powered SoloCam series (pictured).

Hey, Logitech, every mouse should be a forever mouse

A product that you pay for should be supported, period, without the need for an ongoing payment. **BY MARK HACHMAN**



Logitech's vision of a "forever mouse" isn't just a bad idea. It's predatory, and a practice that's not only bad for consumers but doesn't even make sense as an actual product.

Here's what's going on. Recently, Logitech's new chief executive Hanneke Faber spoke (fave.co/3WPB0me) to The Verge's Decoder podcast, where Faber mentioned that she'd recently been shown an example of a "forever mouse." The idea, she

said, was that you'd buy a well-made mouse (fave.co/3v7pdRU), with great software and services that you'd constantly update, and you'd never throw the mouse away.

Sounds great—but then the other shoe dropped: "The business model obviously is the challenge there," she said. "So then software is even more important when you think about it. Can you come up with a service model?"

And you know where the conversation went next. "So you pay a subscription for

software updates to your mouse,” The Verge’s Nilay Patel said.

“Yeah, and you never have to worry about it again,” Faber replied. *Facepalm.*

There are several major problems with Logitech’s idea of a “forever mouse.” For one, we should expect hardware companies to support their products as a matter of rote. It’s been that way for years. Second, hiding additional features behind a paywall gate sucks. And finally, who needs hardware as a service? It’s a very anti-customer trend, and it needs to stop.

GOOD COMPANIES ALREADY SUPPORT THEIR PRODUCTS

When we pay good money for a product, we expect that the manufacturer won’t just hand you the product and walk away. In the car industry, most products are covered by a warranty. In the technology space, products are covered by a warranty *and* years of support. The European Union has even published proposed rules (fave.co/46ORlrh) that call for out-of-warranty parts to be serviced by the manufacturer themselves.

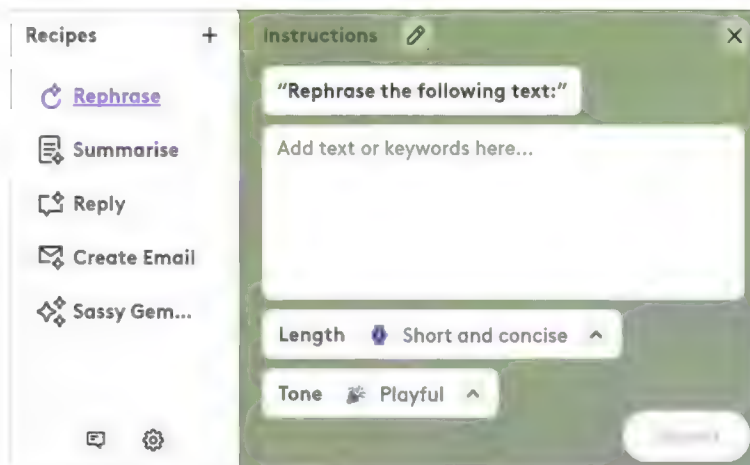
And they should be! Most technology products require some form of software driver to interact with other applications

and the PC operating system. Those drivers can allow products which are years (even *decades*) old to run. There are products, even decades old, that still run on Windows, thanks in part to manufacturer support. This is a legacy of component makers who believed enough in their products to continue supporting them until external factors forced their obsolescence—like USB forced out mice that connected to serial ports.

A good company supports its products, period. And for free.

HIDING NEW FEATURES BEHIND A PAYWALL IS PREDATORY

Charging a monthly or annual fee, whatever it may be, to access updates to a mouse is predatory. I’m in the process right now of reviewing an entirely separate product whose software service transcribes conversations



Logi Prompt Builder is an example of an ongoing service that could be gated behind a subscription with a “forever mouse.”

using AI. It advertises free lifetime transcriptions—but doesn't let you identify the speakers or export the transcription without an additional fee.

Logitech already supplies services that it has not paywalled—the Flow software that allows your mouse cursor to roam between PCs (fave.co/3M5TTaL) on the Logitech MX Master series, for example, as well as AI-powered services like the Logi Prompt Builder (fave.co/4fOH4zi). The automotive world threw a fit when BMW tried to charge consumers for heated seats. Wouldn't you hate to see Logitech paywall capabilities behind a subscription? I know I would.

Logi Prompt Builder is currently a feature of the Signature AI Edition M750 Wireless Mouse, and Flow is part of the Logitech MX series. It's hard to believe that Logitech wouldn't sweep up all of its best features into a subscription and then gate them inside a "forever mouse" or two. And that would be just a horrible move.

NO MORE HARDWARE AS A SERVICE!

What really baffles me, however, is that we've already gone down this road. HP tried out a subscription printer (fave.co/3X5rAji), then



It's amazing that Logitech doesn't seem to be aware of how badly HP's Instant Ink subscription was received.

gave up on the idea (fave.co/4cnmy69) after consumers revolted. The fact that Logitech is even considering something similar doesn't even make sense.

This isn't a difficult argument to make. We simply have too many subscriptions. And they're moving into hardware, too.

Why? Because over time, hardware has increasingly become influenced by software. Intel, for example, employs thousands of software developers, and AMD executives told me that some of the most important software developers are at their PC customers, who are writing custom code and apps to run on their own PCs. Logitech is no different.

Hardware as a service is becoming more prevalent because software is becoming a more intrinsic part of hardware companies. The hardware industry has always been about *exceeding* limits: overclocking, for example. As hardware companies have begun to invest

in software, hardware has become more *like* software, attaching permissions, licenses, restrictions, and eventually subscriptions to what you can and cannot do.

DOES A “FOREVER MOUSE” EVEN MAKE SENSE?

I suppose you could argue that if something ever went wrong with a “forever mouse,” Logitech could step in and hand you a replacement. You could say that AI-powered services like Logi Prompt Builder take advantage of expensive AI services, and those services will eventually need to be paid for in some way.

But the concept of a “forever mouse” doesn’t even really even make sense—because most mice are “forever mice”

anyway. Mice can get gummed up by crud, and their switches can eventually wear out, especially if you’re a gamer.

But plug in any USB mouse into a Windows PC and it will just work. That’s one of the fundamental principles of the PC—since most everything is backward-compatible, older devices run, well, forever. About the only major change to mice in the past two decades or so has been the elimination of the PC serial port and its replacement with USB. Bluetooth isn’t going away, either.

And I mean, well, *it’s a mouse*. Do we really need a mouse subscription?

All Logitech’s talk does is annoy people who have no desire for another subscription in the first place. And for anyone else

considering the same strategy: I’d rather buy from your competition than deal with paying yet another monthly service charge. I suspect I’m not alone.

(After publication, Logitech sent us this statement: “There are no plans for a subscription mouse,” the company said. “The ‘forever mouse’ is not an actual or planned product, but a peek into provocative internal thinking on future possibilities for more sustainable consumer electronics.”) 🔌



According to Bing, this mouse (with a serial port connector!) was sold at Walmart just three years ago. But incompatibility is one of the few ways a product should become obsolete.

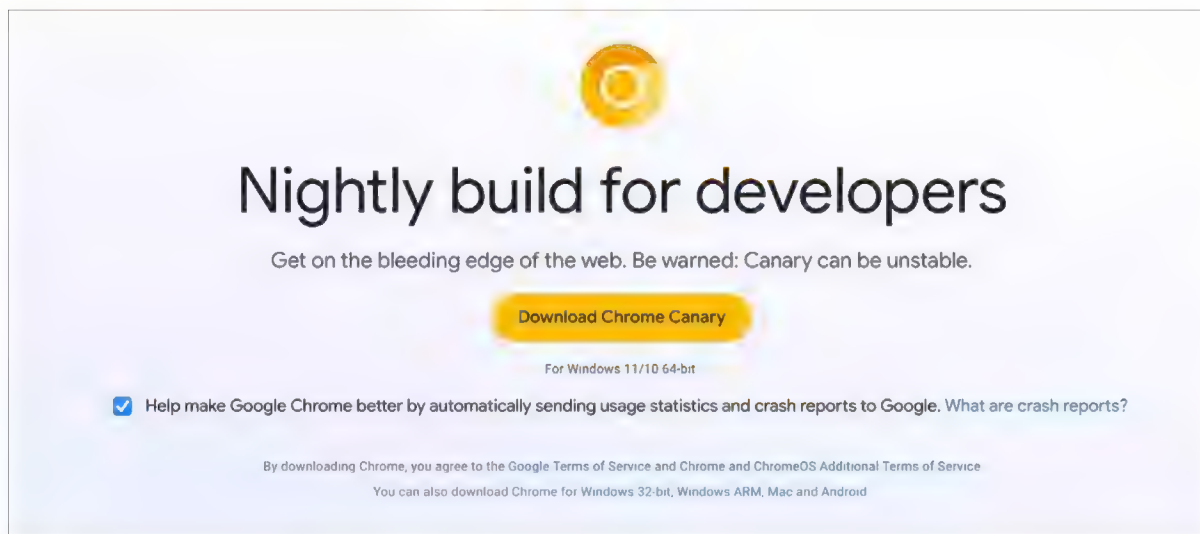


Chrome now warns of resource-hogging tabs—here's how to enable this feature

The new feature is currently hidden in the latest beta version of the Google Chrome browser. **BY MIKAEL MARKANDER**

If you're the kind of person who keeps tons of open tabs in Chrome, you've probably noticed that your PC performance suffers after a while—especially if you're doing more than just reading articles.

Fortunately, in the latest beta version of Chrome, there's a new feature that warns you when a particular tab is consuming too many resources. It's then up to you to decide whether to close that tab or not. If you want to try this new feature now, you have to download



You'll first need to download Chrome Canary.


the latest version of Chrome Canary (fave.co/3yvORS3) from Google's website.

After completing the installation, launch Chrome Canary and type **chrome://flags** in the address bar and press the Enter key. From here, you can adjust all kinds of hidden options that drive Chrome.

To enable the browser tab performance warning, you need to look for and enable these two options:

- #performance-intervention-ui
- #performance-intervention-demo-mode flag

Then restart your computer.

After restarting your system, launch Chrome Canary and type **chrome://settings/performance** in the address bar. Then press the Enter key. You should then be able to select Performance Issue Alerts in the list, according to Windows Latest (fave.co/4dpJKSj). 

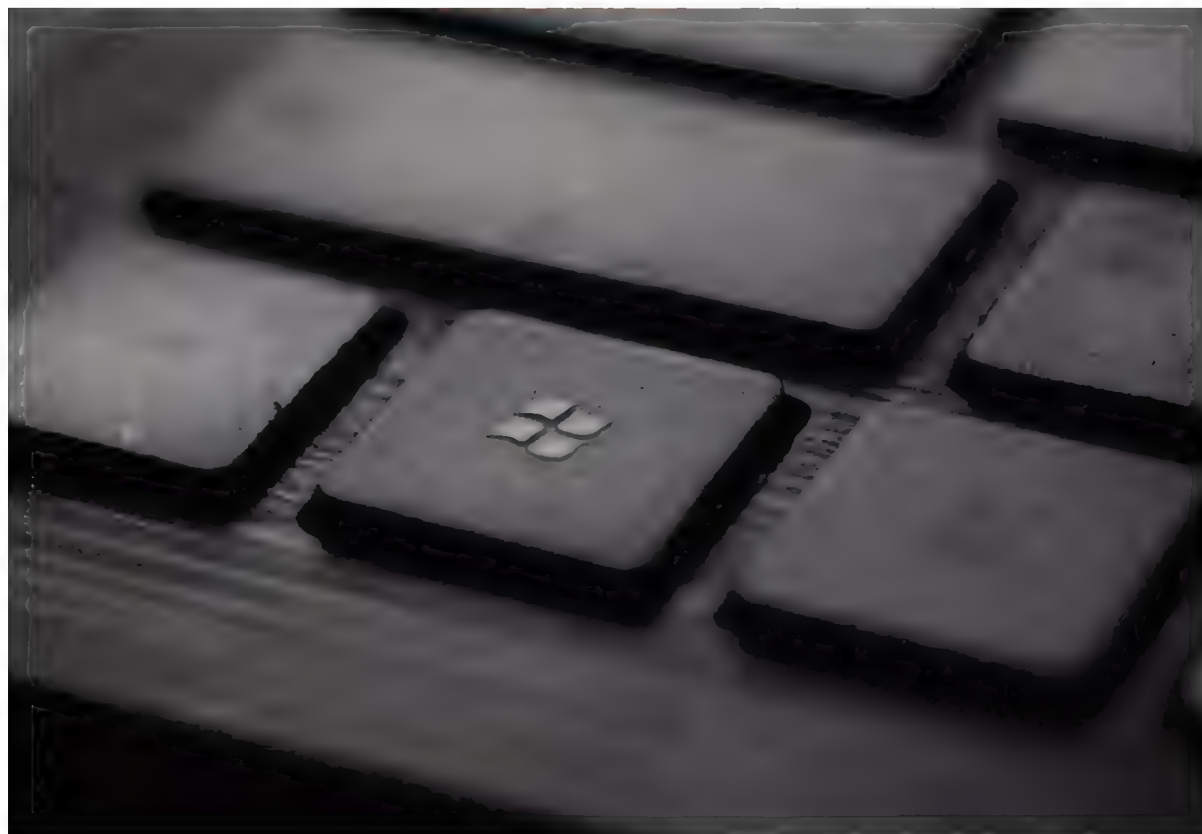


You'll need to restart your computer after enabling the browser tab performance warning.

IMAGE: PEOPLEIMAGES.COM - YURI A / SHUTTERSTOCK

Did you know Microsoft tried to scrap Windows and start over?

Microsoft ambitiously attempted to create an alternate operating system without any Windows code. **BY LAURA PIPPIG**



Somewhere out there could be an alternate universe where Microsoft exists without Windows, but probably not. Microsoft without Windows is almost unimaginable, given how globally popular the operating system has become over the decades.

But back in 2008, it became known that Microsoft was working on an alternative to Windows (fave.co/3SP3RBc). Nicknamed Midori, this operating system was rewritten from the ground up to disregard all existing Windows code and start over from scratch.

Midori could have heralded a new era for Microsoft, but development of the Windows

alternative was abandoned in 2015. Now, a series of videos on X/Twitter (fave.co/4dEMoDq) provides new insights into the discontinued project.

WHY MIDORI WAS SO EXCITING

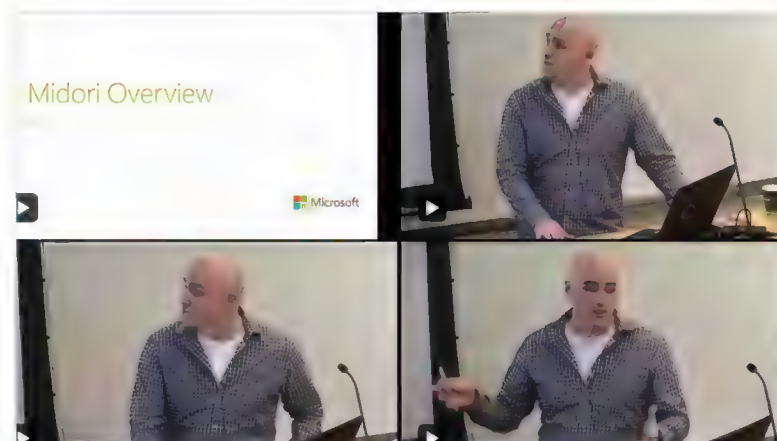
The most exciting thing about Midori wasn't the fact that Microsoft was willing to leave behind the massive heap of legacy spaghetti in Windows that continues to cause issues today. On top of that, it was the promise of new features, tools, and even a new web browser that would all be freshly modern while remaining backward-compatible with Windows. It was ambitious, to say the least.

During a presentation made back in 2013, Microsoft was still speaking hopefully about Midori's new ideas and approaches.

In the videos shared on X/Twitter, you can see Joe Duffy—who was heavily involved in the Midori project—talking about the development of the new operating system. (Duffy no longer works at Microsoft.)

WHAT HAPPENED TO MIDORI?

Just two years later, Microsoft officially abandoned Midori. There were likely internal crises that led up to the decision, as it wouldn't have made sense to throw all of that

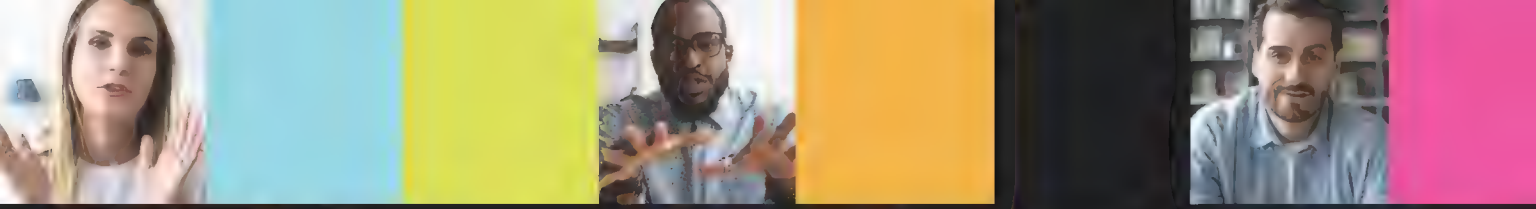


Videos show Joe Duffy talking about the new operating system.

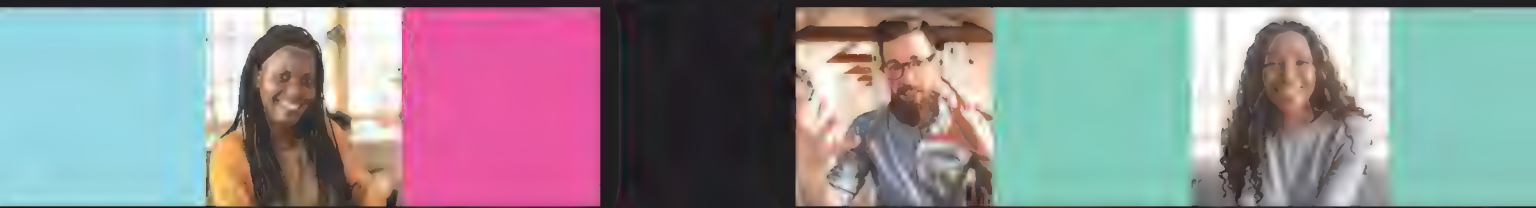
research and development away on a whim, but no one knows for sure.

Earlier reports dating back to Midori's active development period reveal a lot of skepticism toward the project. Why abandon the old kernel to start something completely new if the old one still works well enough and can be improved? Microsoft had always prioritized the longevity of Windows and its ability to evolve over many, many decades in far-reaching ways.

After Midori was cancelled, Microsoft took some of its ideas and incorporated them into Windows. But even as they did so, Microsoft strangely tried to maintain a cloak of secrecy over Midori. Maybe it would've been too much egg on Microsoft's face. Or maybe Microsoft didn't want the world at large to believe that there could be a true alternative to Windows. After all, Windows remains the bedrock for almost all things Microsoft to this day, a central building block of the company despite all its weaknesses and drawbacks. 🔌



DROP THE F*BOMB




TALK TO YOUR KIDS ABOUT FENTANYL

Fentanyl is being used to make counterfeit pills and is being laced into other illicit drugs. Make sure your teens know the facts.

Learn the facts on fentanyl and start a life-saving conversation with your teen.

DropTheFBomb.com



A close-up photograph of a Black woman and a young Black man. The woman, on the left, is looking up at the man with a joyful expression. The man, on the right, is looking down at her, also smiling. They are outdoors, with soft, out-of-focus greenery in the background. The lighting is warm and natural.

He's 6'1",
but he still
looks up
to me.

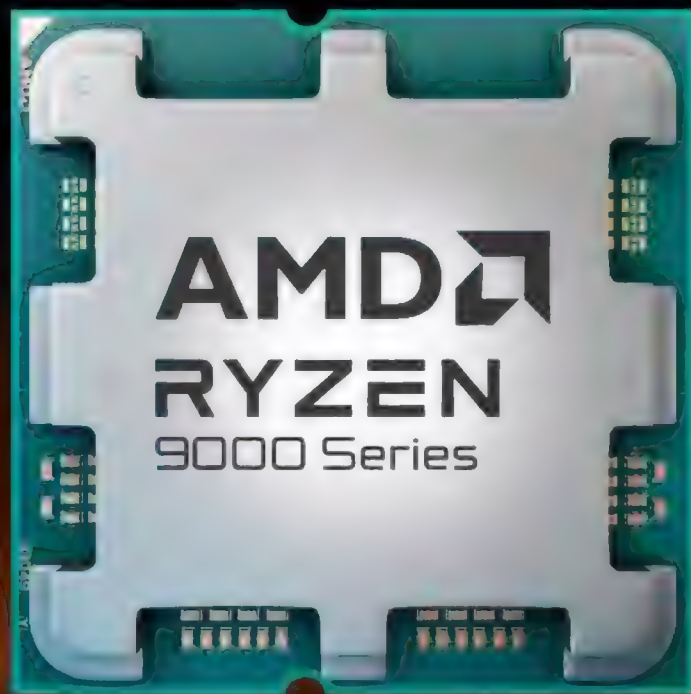
Adopt a teen.
You can't imagine the reward.



AdoptUSKids



A D O P T U S K I D S . O R G



Don't buy AMD's new Ryzen 9000 CPUs before knowing these seven key details

This launch is more complicated than you might think. **BY ALAINA YEE**

After a brief delay (fave.co/3WQyRIG), AMD's Ryzen 9000 has hit shelves—but to everyone's surprise, the first processors come with surprising caveats. Despite offering plenty to like, the \$279 Ryzen 5 9600X (fave.co/3SPJbsV), \$359

Ryzen 7 9700X (fave.co/3ApeCUy), \$499 Ryzen 7 9900X (fave.co/3WQyKXi), and \$649 Ryzen 9 9950X (fave.co/3YMqPwP) also bring with them uneven performance improvements.

The reasons for those benchmark results are nuanced, however. We at PCWorld even

delayed the release of our deep-dive review (fave.co/3Yli1bd) to better tease out those fine-grain details. (You can watch us explain why in this YouTube video, fave.co/3SQUnFy, where we also discuss our initial results in-depth.) But if you're wondering if Team Red's latest silicon is worth your cash and you just want the quick version, here are the top 7 things you should know. For a much deeper dive into performance, check out our full review video here: fave.co/3Yli1bd.

BIG IMPROVEMENTS IN SINGLE-CORE PERFORMANCE

The benchmark numbers for single-core performance are similar across the initial lineup of Ryzen 9000 processors—and those results put them at the top. In Cinebench R23, one of the rendering benchmarks we use to put CPUs through their paces, the 6-core, 12-thread Ryzen 5 9600X outdid the 7600X by 13 percent. Similarly, the 8-core, 16-thread Ryzen 7 9700X posted an almost 15 percent increase over the 7700X.

For their part, the 12-core, 24-thread Ryzen 9 9900X and 16-core, 32-thread Ryzen 9 9950X offer an almost 12 percent uplift over their Ryzen 7000 predecessors. Overall, these gains are solid improvements—and give AMD a slim edge over Intel.

Against the Core i7-14700K, the 9700X offers a 4.7 percent boost in performance, and is neck-and-neck with the more powerful Core

Maxon Cinebench 2024 1T



LONGER BARS INDICATE BETTER PERFORMANCE

i9-14900K. Meanwhile, the 9600X pulls ahead of the Core i5-14600K by a little over 8 percent, which is a nice win for users mindful of their budgets. The 9900X and 9950X basically hold even with the Core i9-14900K—a step up compared to Ryzen 7000's disadvantage against Intel's 14th-gen chips.

BUT LACKLUSTER GAINS IN MULTI-CORE PERFORMANCE

However, Ryzen 9000 loses some shine when you look at its multi-core performance. Benchmark results can be notably affected by motherboard settings—and the way many

Maxon Cinebench 2024 nT



LONGER BARS INDICATE BETTER PERFORMANCE

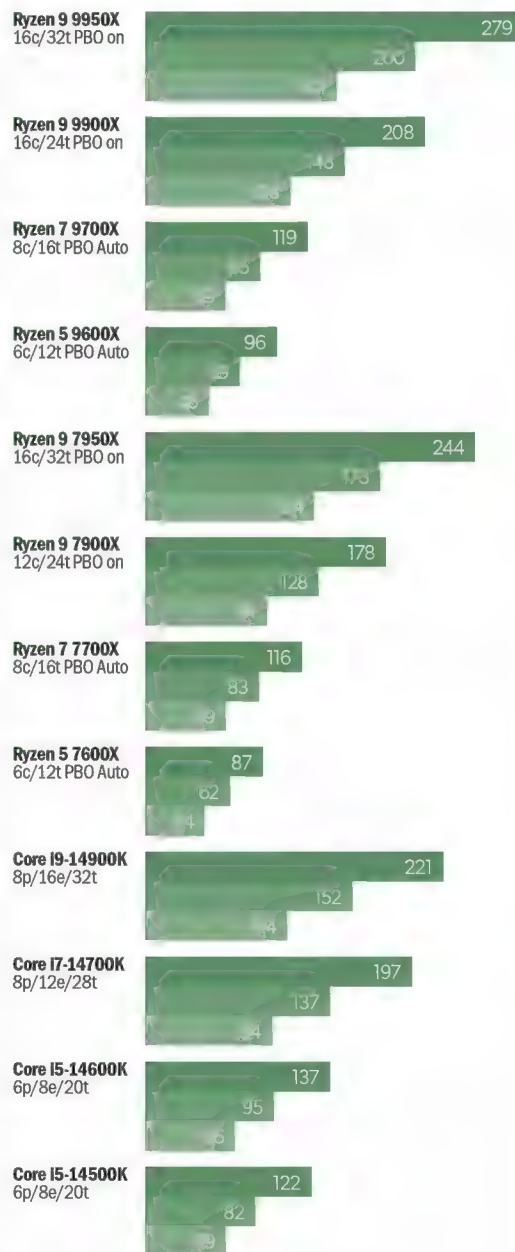
reviewers test (including PCWorld) doesn't show the silicon's full range.

During our initial round of testing, the 9700X gave essentially the same performance as the 7700X in Cinebench R23's multithreaded test—the thin 1.48 percent doesn't exceed a normal testing margin of error (usually between 2 to 3 percent).

The outcome was better for the 9600X, with a roughly 7 percent increase in Cinebench compared to the 7600X, but that uplift is modest compared to previous generational jumps. Typically, 15 to 20 percent begins to push the envelope (as seen in single-core performance).

Open Data Blender Benchmark 4.2.0

■ Monster (samples per minute) ■ Junkshop (samples per minute)
■ Classroom (samples per minute)

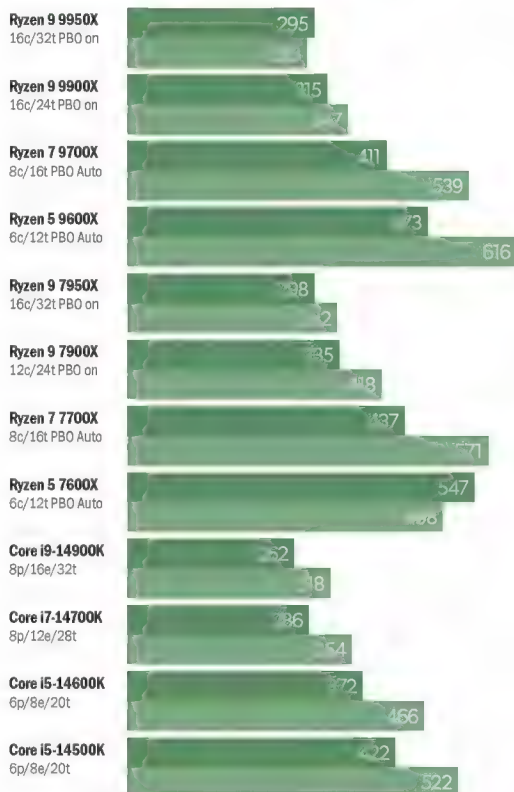


LONGER BARS INDICATE BETTER PERFORMANCE

Handbrake 1.8.1 4K Transcode AV1 and HEVC

Seconds

■ Very Fast 4K AV1 preset ■ Very Fast 4K HEVC preset



SHORTER BARS INDICATE BETTER PERFORMANCE

This story repeated with similar effect in our other rendering and encoding benchmarks used to evaluate multi-core performance. When looking at such minimal gains, Ryzen 9000 lags behind Intel's 14th-gen processors. Opting for a 14700K is a whopping 72 percent performance increase in Cinebench over

the 9700X, while a 14600K is an almost 60 percent boost compared to the 9600X. For anyone who needs strong multi-core performance (whether for intensive work like rendering or just heavily threaded games), Intel can look like your better bet—provided you're comfortable with the recent concerns around 14th-gen chip performance and longevity (fave.co/4dIp480).

But staunch Team Red fans shouldn't despair just yet—because this isn't the full story around multi-core performance.

MOTHERBOARD SETTINGS MATTER

Two settings in your motherboard UEFI (sometimes still colloquially referred to as the BIOS) can greatly influence how well Ryzen 9000 performs: Precision Boost Overdrive (PBO) and RAM voltage.

Of the two, PBO plays a greater role in whether you'll see merely so-so gains, or if you'll get closer to what AMD promises. When enabled, it dynamically feeds more voltage to the processor for clock speed increases—which provide better performance.

Not all motherboards enable PBO by default, so if you buy a Ryzen 9000 processor and want the most out of it, you'll need to go into UEFI and ensure it's on.

Additionally, AMD recommends running RAM at a voltage of 1.2V, rather than 1.25V (a common setting). Similar to PBO, the latter

voltage can be a default on some mobos—like on PCWorld’s own test hardware, a ASRock X670E Taichi.

Changing these settings isn’t difficult, but most users are accustomed to dropping in a chip and moving on. These necessary tweaks make Ryzen 9000 feel more finicky than previous generations, which didn’t need such precise handling. However, according to AMD, part of the reason for this outcome is

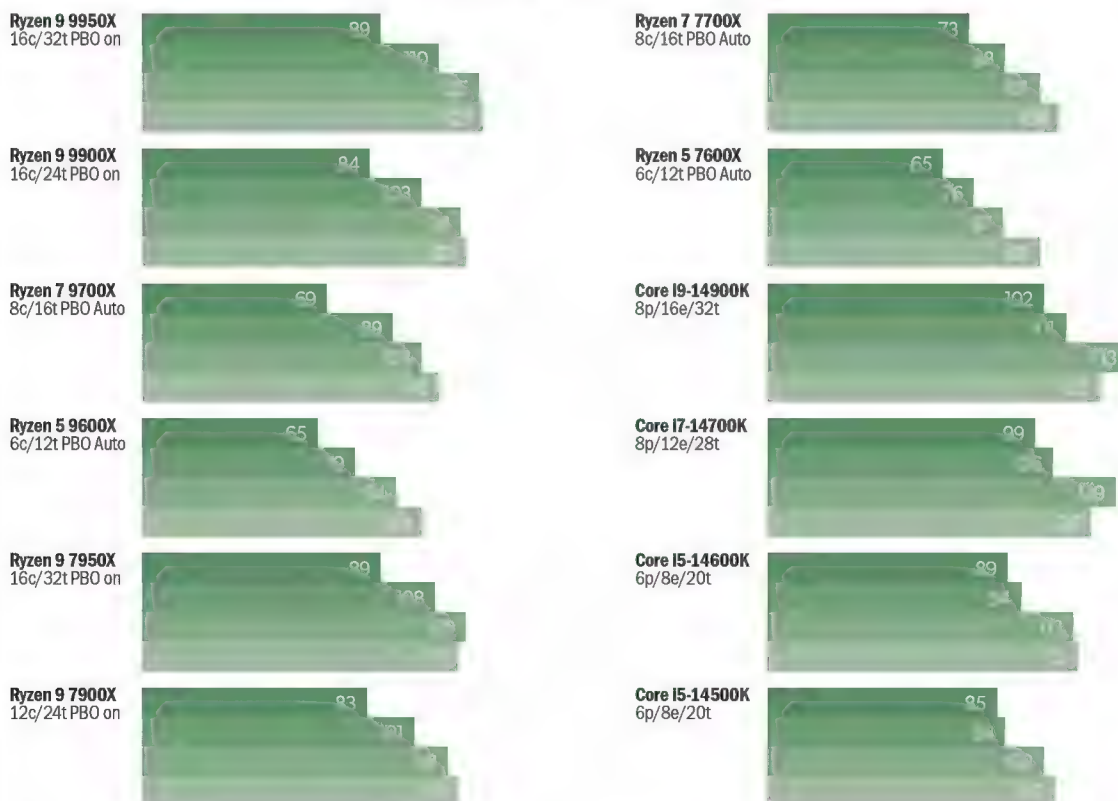
due to the lower TDP of the Ryzen 5 and Ryzen 7 processors. With a tighter ceiling on power efficiency, the balance between performance and acceptable operating temperature is a finer line to walk.

AMD’S BEST CHIP CAN BEAT INTEL’S IN MULTI-CORE WORKLOADS

On the more powerful (and more power

PugetBench 1.0.1 Extended Run Adobe Premiere Pro 24.5 Subscores

■ Extended LongGOP ■ Extended Intraframe ■ Extended RAW ■ Extended GPU Effects

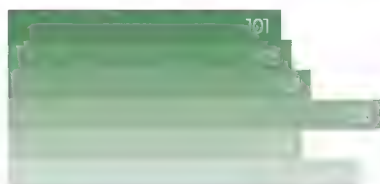


LONGER BARS INDICATE BETTER PERFORMANCE

PugetBench 1.0 Extended Subscores DaVinci Resolve 18.6.6.7

Extended LongGOP Extended Intraframe Extended RAW Extended GPU Effects Extended Fusion Extended AI

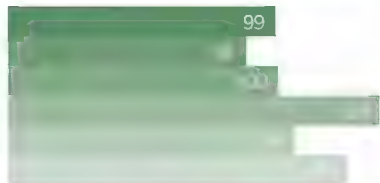
Ryzen 9 9950X
16c/32t PBO on



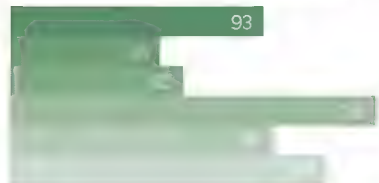
Ryzen 7 7700X
8c/16t PBO Auto



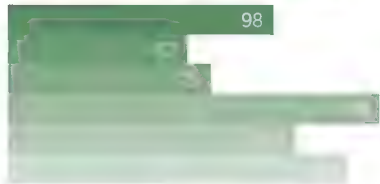
Ryzen 9 9900X
16c/24t PBO on



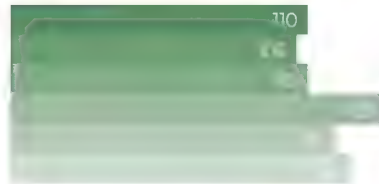
Ryzen 5 7600X
6c/12t PBO Auto



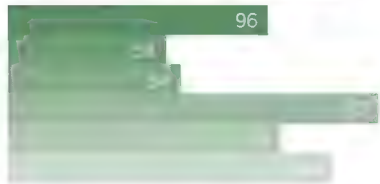
Ryzen 7 9700X
8c/16t PBO Auto



Core i9-14900K
8p/16e/32t



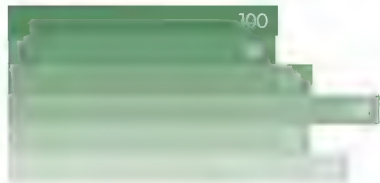
Ryzen 5 9600X
6c/12t PBO Auto



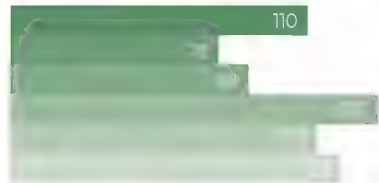
Core i7-14700K
8p/12e/28t



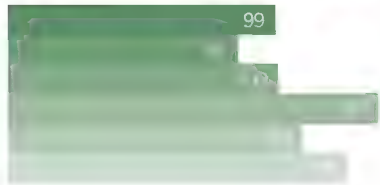
Ryzen 9 7950X
16c/32t PBO on



Core i5-14600K
6p/8e/20t



Ryzen 9 7900X
12c/24t PBO on



Core i5-14500K
6p/8e/20t



LONGER BARS INDICATE BETTER PERFORMANCE

hungry) 9950X and 9900X, the gains are much larger when upgrading from

their Ryzen 7000 counterparts. The 9950X, which has a 170W TDP, posts

PugetBench 1.0 Standard Overall—Adobe Photoshop 25.11



LONGER BARS INDICATE BETTER PERFORMANCE

an almost 8.5 percent improvement over the 7950X in Cinebench R23's multithreaded benchmark.

Enabling PBO for 9950X also allows it to outperform Intel's flagship chip—at least in our rendering benchmarks. We saw a 6.5 percent lead in Cinebench R23. The difference is even more dramatic in other rendering benchmarks, like Blender's open source tests. The 9950X posted a 30 percent increase in the suite's Classroom test, a 27 percent gain in the Junkshop test, and a 23 percent uplift in the Monster test.

However, Intel doesn't suffer a complete drubbing. In fact, it retains a slight lead in other

PugetBench 1.0 Standard Run Subscores—Adobe Photoshop 25.11



LONGER BARS INDICATE BETTER PERFORMANCE

workloads, like encoding and video production. Which top-tier CPU is right for you will depend on your most common tasks.

SPECTACULAR POWER EFFICIENCY

From a chip nerd's perspective, AMD's ability to coax high-end performance out of lower-wattage CPUs is incredible. The

PugetBench 1.0.1 Extended Run Adobe Premiere Pro 24.5



LONGER BARS INDICATE BETTER PERFORMANCE

PugetBench 1.0.1 Extended Overall DaVinci Resolve 18.6.6.7



LONGER BARS INDICATE BETTER PERFORMANCE

power efficiency speaks well of the engineering—Team Red's first two Ryzen 9000 CPUs have a default TDP of 65W, or nearly half of Intel's base TDP of 125W for the 14700K and 14600K.

In other words, AMD's processors are posting single-core performance as good as Intel's using far less juice. The weaker multicore performance is less to do with an inherent weakness with the silicon design, and more to do with how hard AMD is willing to gun the engine for the 9700X and 9600X. We've already seen in recent CPU generations that much of their gigantic

performance leaps have to do with amount of electricity run through the chips. So as hinted by the situation with motherboard PBO settings, that's the contrast we're seeing here.

STAGNANT GAMING PERFORMANCE GEN-ON-GEN

However, the frame rates you get are the frame rates you get—and if you're a gamer who's been waiting to upgrade, you'll want to feel that your money is being invested in a solid bump up.

Fact of the matter is, Ryzen 9000's gaming performance doesn't move the needle much past Ryzen 7000—and in some cases, it appears to go backward. You'll see it most in challenging games, as evidenced by our *Cyberpunk 2077* benchmark results. The small dip in the numbers gen-on-gen can mostly be attributed to that

standard margin of error for testing, as mentioned above, but the 9950X actually drops by as much as 4 percent.

Even in games more sensitive to CPU improvements, the gains are modest, topping out at about 7 percent in *Tom Clancy's Rainbow Siege Six* and *F1 2023*. For *Total War: Warhammer III*, the biggest uplift among the chips is even smaller, coming in at just over 4 percent.

LOWER PRICES THAN RYZEN 7000

To AMD's credit, the company is asking for less money this time around—so for those watching their budgets like a hawk, a minimal boost in gaming performance may not matter as much.

The entire lineup sees a reduction (fave.co/3yxzxEu), with the Ryzen 9 processors



For those watching their budget, the chip's minimal performance boost may not matter much.

dropping by \$50 compared to the last generation, the Ryzen 7 9700X going down by \$40, and the Ryzen 5 9600X shaving \$20 off the asking price. (AMD hasn't confirmed Ryzen 9 prices yet, but Best Buy leaked them.)

Ryzen 9 9950X: \$649

Ryzen 9 9900X: \$499

Ryzen 7 9700X: \$359

Ryzen 5 9600X: \$279

While these prices don't return to AMD's incredibly affordable MSRPs from earlier generations (like Ryzen 3000), they definitely undercut the competition. Currently, Intel's rival chips have street prices of approximately \$550 for the 14900K, \$380 for the 14700K, and \$300 for the 14600K. If you want additional multicore performance, you'll have to pay for it. 🔌

Asus ProArt PX13: Serious creative horsepower with the Ryzen AI 300

AMD's Ryzen AI 300 series delivers incredible CPU performance. **BY CHRIS HOFFMAN**



The Asus ProArt PX13 (fave.co/4fKY8WZ) is a portable PC intended for creators. It's one of the first laptops out there with the new AMD Ryzen AI 9 HX 370 processor. New CPU aside, this PC packs lots of other useful features for creators, including a dedicated Nvidia RTX 4050 GPU, 32GB of RAM, and a beautiful OLED display with a touchscreen that also supports pressure-sensitive stylus input. It has a 360-degree

hinge so you can lie it flat, too. This is a high-quality PC for creators, and that AMD Ryzen hardware takes it to the next level. As we've already seen in some of our AMD Ryzen AI 300 benchmarks (fave.co/3MtBrJH), this is "pretty, pretty, pretty darn good" hardware from AMD.

SPECS

The Asus ProArt PX13 has impressive specs. It includes an AMD Ryzen AI 9 HX 370 CPU as

well as a whopping 32GB of RAM, ensuring plenty of memory for creative applications.

AMD's Ryzen AI platform includes a neural processing unit (NPU), fave.co/3M8R3Sp, with "up to 50 TOPS" (trillion operations per second) of performance. This means it beats the NPU in those Snapdragon X-powered Copilot+ PCs—at least on paper. And, unlike those Snapdragon X Elite and Snapdragon X Plus-powered laptops, this machine is a traditional x86 computer with full compatibility with traditional Windows software—no Prism translation layer required.

On top of that, you get a discrete Nvidia GPU. The \$1,699 base model we reviewed includes an Nvidia RTX 4050 GPU, while Asus also sells a \$1,999 model that comes with an Nvidia RTX 4060 GPU. A discrete Nvidia GPU like this one will be something many creative professionals are looking for, whether they're doing graphical rendering or local AI tasks (fave.co/3SG6Nza). This is yet another feature that Arm-powered Windows PCs don't offer—with Snapdragon, you're limited to the onboard Qualcomm Adreno GPU.

It's worth noting that the Asus ProArt PX13 does not include a pen. You'll have to buy a pen like the Asus Pen 2.0 (fave.co/3Z68paz) separately to take advantage of the screen's stylus support.

CPU: AMD Ryzen AI 9 HX 370

Memory: 32GB LPDDR5X 7500 MHz

Graphics/GPU: Nvidia RTX 4050, AMD Radeon 890M

Display: 13.3-inch 2880×1880 OLED display with 60Hz refresh rate, touchscreen, stylus support

Storage: 1 TB PCIe 4.0 SSD

Webcam: 1080p webcam

Connectivity: 2× USB Type-C (USB4), 1× USB Type-A (USB 3.2 Gen 2), 1× combo audio jack, 1× HDMI 2.1, 1× microSD reader, 1× power in

Networking: Wi-Fi 7, Bluetooth 5.4

Biometrics: IR camera for facial recognition

Battery capacity: 73 Watt-hours

Dimensions: 11.74×8.26×0.7 inches

Weight: 3.04 pounds

MSRP: \$1,699 as tested

DESIGN AND BUILD QUALITY

The Asus ProArt PX13 has great build quality with an all-aluminum chassis. The hinge works



The ProArt PX13 has an all-aluminum chassis.



You'll find an elegant Asus ProArt logo on the lid.

well—it's easy to open with one hand, and the screen doesn't move or wobble as you type. The all-black design looks good to me, with an elegant Asus ProArt logo on the lid. It has a 360-degree hinge so you can rotate it into a tent mode or lie it flat on a surface for drawing.

Asus touts the laptop's "nano black" finish, stating that its "anodizing process creates a nano-microporous structure that minimizes reflections, ensuring the laptop's sleek ultra-black appearance in any lighting." Asus also goes out of the way to tout the hydrophobic nature of the coating, stating that it produces a "smudge-resistant finish" that repels fingerprints. It all adds up to a very nice, premium-looking finish.

This 13.3-inch laptop is 3.04 pounds, which is just barely heavier

than Snapdragon X-powered laptops like Microsoft's Surface Laptop (fave.co/3X7OXJ5). It's nice and portable. Considering this is a traditional x86 laptop that packs a discrete Nvidia GPU, that's impressive. It feels solid and well made.

This PC has very effective fans, but they can be very loud. It isn't the kind of "cool and quiet" everyday PC experience you find on an Arm-based Snapdragon X-powered PC. The fan is often audible in day-to-day computer use, unlike with a

Snapdragon X-powered laptop.

KEYBOARD AND TRACKPAD

The Asus ProArt PX13 has an impressive chiclet keyboard that feels great to type on. It's one of the snappier keyboards I've used



The chiclet keyboard is one of the snappiest I've used outside a mechanical keyboard.

outside of a mechanical keyboard. The laptop's key travel distance of 1.7mm plays an important role here, I'm sure. There's nothing mushy about the action on this keyboard. It's a well-laid-out keyboard with white backlighting and the obligatory Copilot key for launching Microsoft's AI chatbot.

The Asus ProArt PX13 has a trackpad with an interesting feature. The trackpad itself is a good size that feels pleasant to use and swipe your finger over, and palm rejection isn't a problem. Still, while it's a nice trackpad, the click experience doesn't feel as nice as the kind of click you'll get on a haptic touchpad like those in Microsoft's latest Surface Laptops.

The trackpad includes an Asus DialPad (fave.co/4cvCXWf) at the top-left corner. To activate the Asus DialPad, you will touch the top-right corner of the touchpad and then diagonally, down and down the left. A small LED light will turn on inside the DialPad. You can then touch and rotate it to select different options in different applications. It's a neat feature and is incredibly customizable using the Asus Dial & Control Panel application included with the PC. It works in a wide variety of applications, including Adobe Photoshop. Asus sees you using the dial as a



The trackpad includes an Asus DialPad at the top-left corner.

convenient way to adjust brush sizes, for example, without keyboard shortcuts or clicking around with your mouse.

DISPLAY AND SPEAKERS

The Asus ProArt PX13's display is the star of the show. This vivid 13.3-inch OLED display delivers 2880×1880 (3K) resolution with a 60Hz refresh rate and 500 nits of peak brightness. That's a 16:10 aspect ratio, which is great for work. It also features a touch screen and support for a stylus with multiple pressure levels—although, again, Asus does not include a stylus with this PC. That's sold separately.

Some people will quibble with the 60Hz refresh rate. You can definitely get displays with a higher refresh rate. But this is a creator-focused laptop, not a gaming laptop. The

OLED is beautiful and Asus prioritized other specs above refresh rate, which I feel is understandable. Also, this laptop already doesn't have the longest battery life, and a higher refresh rate would further eat into it.

The Asus ProArt PX 13 has high-quality speakers. They're Harman Kardon-certified speakers. Asus says the speakers "output louder volumes with richer depth and better surround-sound effects, compared to laptops of a similar size." That's a fair assessment: They're plenty loud and they delivered a better sound experience than the speakers in a typical 13-inch laptop when watching movies. Lack of bass is always an issue with all but the most premium of speakers in the beefiest of gaming laptops, but this laptop's speaker setup sounds unusually good for its size.



The ProArt PX13's display is the star of the show.

WEBCAM, MICROPHONE, BIOMETRICS

The Asus ProArt PX13 includes a 1080p webcam, and it looks good—I'd be happy to use it in video meetings.

There's one surprising thing about the webcam setup: This laptop doesn't include Windows Studio Effects, an AI-based webcam feature built into Windows that requires a neural processing unit (NPU.) This is the one AI feature I expected to find built into Windows—it was also available on Intel's Meteor Lake laptops (fave.co/3PUqbHI), which launched before Copilot+ PCs. Perhaps this feature will arrive if and when this PC becomes Copilot+ PC certified and gains access to other AI features built into Windows 11 in the future.

Asus says this laptop has a "built-in array microphone." It sounds nice and clear, but it was a little on the quiet side. When I opened Windows settings to turn up the microphone volume, I found it was already turned to maximum. It's workable, but I'm used to more volume from built-in laptop microphones out of the box.

The IR camera worked well here, using Windows Hello to sign me in with facial recognition after I opened the

laptop or turned it on. This laptop does not include a fingerprint reader—facial recognition is your one option for biometrics.

CONNECTIVITY

The Asus ProArt PX13 has a good selection of ports. On the left, you've got a DC power in jack for the charger, an HDMI 2.1 port, a USB Type-C (USB4) port, and a combo audio jack.

On the right, this laptop has a second USB Type-C (USB4) port, a USB Type-A (USB 3.2 Gen 2) port, and a microSD card reader slot next to the power button. That's about what you'll be looking for in a laptop of this size. You can always get a dongle (fave.co/30z4JBG) if you need an Ethernet connection or more ports.

The Asus ProArt PX13 also includes hardware that supports Wi-Fi 7 and Bluetooth 5.4. It's high time modern hardware platforms start including Wi-Fi 7 (fave.co/3rPd820) as a standard feature. Even if you don't have a Wi-Fi 7 router yet, it's good to have for future proofing.

WHAT ABOUT COPILOT+ PC FEATURES?

The Asus ProArt PX13 includes a neural processing unit (NPU) with up to 50 TOPS (trillion operations per second) of performance. This is faster than the NPUs



Asus provides a good selection of ports.

found in the first wave of Copilot+ PCs, which are powered by Arm-based Snapdragon X Elite or Snapdragon X Plus chips.

Despite that, this PC doesn't have any of those Copilot+ PC features—which, to be fair, are underwhelming right now anyway (fave.co/4f3NQkw). As mentioned above, this PC doesn't even include Windows Studio Effects for webcam effects, despite that package of effects being available on Intel's Core Ultra-powered Meteor Lake laptops, which launched earlier this year.

AMD has said it expects Copilot+ PC

features will arrive via Windows Update by the end of 2024 (fave.co/3X7Rsl6), but Microsoft hasn't publicly committed to that timeline. Microsoft has not been clear about exactly when these PCs will get Copilot+ PC features, and that's unfortunate. With the controversial Recall feature delayed (fave.co/4eXeClf), Microsoft's messaging around these Copilot+ PC AI features is very messy in general. The same will be true for other AMD Ryzen AI-powered laptops as well as Intel's forthcoming Lunar Lake-powered systems.

We don't have a great way to benchmark the performance of the NPU (neural processing unit) just yet. That's especially true since few creative applications are using the NPU at this moment. AMD has gone out of its way to show off the NPU in some ways, bundling two applications: MuseTree (fave.co/4dGhZog) is an application that gives you "inspiration," and it will generate a tree of AI-generated images and ideas for you. StoryCube (fave.co/3SRh0cY) is designed to import images and video and organize them with AI. They're interesting, and it's nice to see Asus try to do something creative.

PERFORMANCE

The Asus ProArt PX13 offered great performance in day-to-day computer use. With the latest AMD Ryzen AI 9 HX 370 CPU, a discrete Nvidia GeForce RTX 4050 GPU,

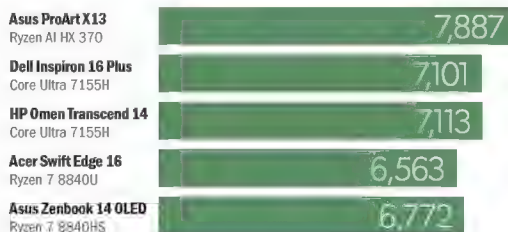
32GB of RAM, and a 1TB SSD, that's exactly what we'd expect to see—there's no surprise there. But just how does this x86 laptop stack up to recent offerings from Intel, like the competing Intel Core Ultra "AI PCs" with current Meteor Lake hardware? As always, we ran the Asus ProArt PX13 through our standard benchmarks (fave.co/4cjKcl4) to see how it performs.

First, we run PCMark 10 to get an idea of overall system performance. While this benchmark is designed to be a test of holistic system performance, it's particularly focused on the CPU.

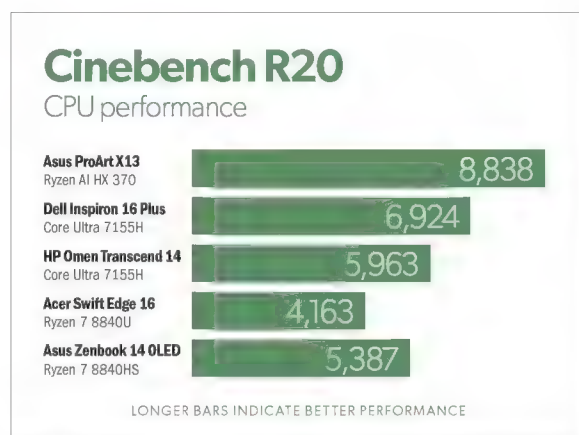
With an overall PCMark 10 score of 7,887, the Asus ProArt PX13 blew away other creator-focused laptops in the market like the Dell Inspiron 16 Plus (fave.co/4cnTF9O), which features a Intel Core Ultra 7 155H CPU. AMD's latest Ryzen hardware is delivering some serious multithreaded performance in particular. As we demonstrated in our overall Ryzen AI

PCMark 10 Overall

CPU performance



LONGER BARS INDICATE BETTER PERFORMANCE



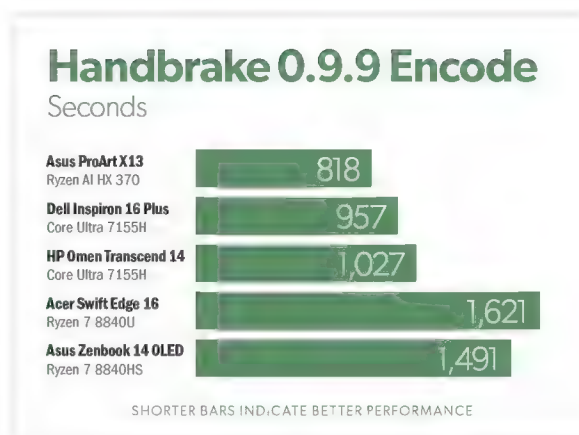
300 benchmarks (fave.co/3MtBrjH), multithreaded performance is where this hardware really shines.

Next, we run Cinebench R20. This is a heavily multithreaded benchmark that focuses on overall CPU performance. It's a quick benchmark, so cooling under extended workloads isn't a factor. But, since it's heavily multithreaded, CPUs with more cores have a huge advantage.

With a score of 8,838, the Asus ProArt PX13 absolutely blew away the competition once again. This is seriously impressive performance. I hope Intel's upcoming Lunar Lake chips delivers some serious multithreaded performance gains to compete.

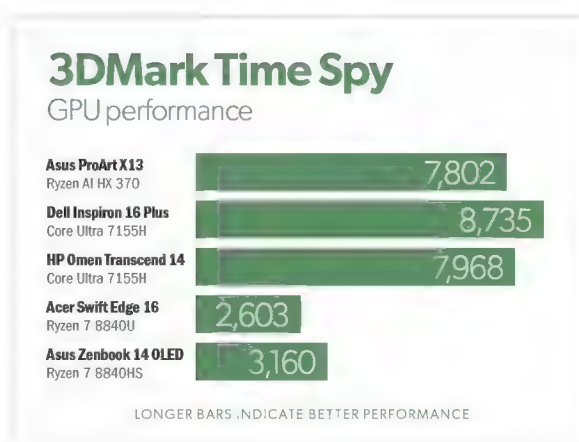
We also run an encode with Handbrake. This is another heavily multithreaded benchmark, but it runs over an extended period of time. This demands the laptop's cooling kick in and many laptops will throttle and slow down under load.

The Asus ProArt PX13 completed the



encode process in 818 seconds—about 13 and a half minutes. Again, that's significantly faster than the Intel Meteor Lake-powered PCs we compared it against.

Next, we run a graphical benchmark. While this has an Nvidia GPU, it isn't a gaming laptop (fave.co/4dEHNiK). You can play games on it in a pinch, naturally, but the intended use of that GPU is 3D rendering, GPU-heavy AI tasks, and other creative workloads. We run 3Dmark Time Spy, a graphical benchmark that focuses on



GPU performance.

Naturally, the results here are all about the GPU. The Asus ProArt PX13, with its Nvidia GeForce 4050, fell behind some GeForce 4060-powered laptops. The version of this laptop with the GeForce 4060 would likely catch up.

Overall, performance on this laptop was excellent. AMD's new Ryzen AI 300 series hardware is delivering serious multithreaded CPU power.

BATTERY LIFE

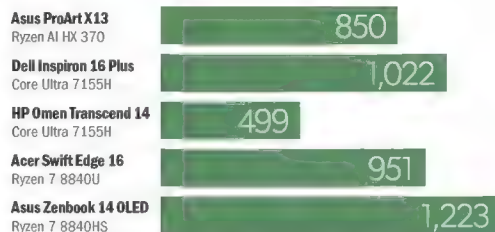
The Asus ProArt PX13 includes a 73 watt-hour battery. While this is a new CPU from AMD and the industry is becoming more focused on battery life and power efficiency (fave.co/3WNfMkc), AMD has been quieter about battery life. Qualcomm and Intel are competing on long battery life, but AMD seems to be focusing on performance.

To benchmark a laptop's battery life, we play a 4K copy of *Tears of Steel* on repeat on Windows 11 with airplane mode enabled until the laptop suspends itself. We set the screen to 250 nits of brightness for our battery benchmarks, and it's worth noting that the Asus ProArt PX13's OLED display has a bit of an advantage, as OLED screens use less power to display the black bars around the video.

This is a best-case scenario for any laptop since local video playback is so efficient, and real battery life in day-to-day use is always going to be less than this.

Battery Life

Minutes



LONGER BARS INDICATE BETTER PERFORMANCE

In our battery rundown test, the Asus ProArt PX13 lasted for an average of 850 minutes—that's just over 14 hours. While that's a reasonable number, especially considering the OLED display and the other hardware this machine includes, it's definitely far shorter than current Copilot+ PCs with their Qualcomm Snapdragon X Elite or Qualcomm Snapdragon X Plus hardware.

The Surface Laptop (fave.co/3X7OXJ5) is a good example of Qualcomm's battery life strength: It delivered 1,223 minutes of battery life in our test, which is over 20 hours. And the Surface Laptop has a smaller battery at 54 watt-hours compared to the 73 watt-hour battery in this PC.

Remember that while 14 hours may sound like a lot, you'll get less in day-to-day use as you actually use applications on the laptop. This x86-based creator-focused laptop has a lot of positives, but it does fall behind Arm-based Snapdragon X PCs when it comes to battery life.

BOTTOM LINE

The Asus ProArt PX13 is an incredible laptop. If you're a creator looking for a high-quality machine with great build quality, the latest AMD CPU with seriously impressive multithreaded performance, a discrete Nvidia GPU, and lots of RAM, this is a great machine. It has complete compatibility with existing x86 software with no Prism translation layer (fave.co/3zDBwau) slowing things down or causing occasional compatibility problems.

Starting at \$1,699 with all this hardware—the screaming-fast AMD CPU, vivid OLED screen, discrete Nvidia GPU, 32GB of RAM, and 1TB of storage combined with nice build quality—it's a compelling package if you're looking for a 13.3-inch laptop.

But, while this machine has many of the traditional strengths of an x86 PC, it also has its traditional downsides. Battery life is lower, and the fan is surprisingly loud in normal PC use. It's normal on an x86 laptop, especially one with this type of hardware.

However, this machine isn't for everyone. If you'll be doing lighter work and you don't need the high-end hardware here, an Arm-powered Snapdragon PC (fave.co/46NlqGm) will deliver substantially longer battery life combined with cool and quiet operation.

If you're not in a rush to buy a PC, you may want to wait to see reviews of Intel's Lunar



The ProArt X13 is an incredible laptop.

Lake hardware (fave.co/4f6zIH1). Intel says it's launching Lunar Lake (fave.co/3yKCly3) on September 3, 2024. The company has been making big promises about both long battery life and incredible performance gains. We look forward to reviewing Intel's new hardware and seeing how it compares. 🔌

Asus ProArt PX13



PROS

- Excellent multithreaded CPU performance.
- Beautiful OLED screen.
- Discrete Nvidia GPU for creative tasks.

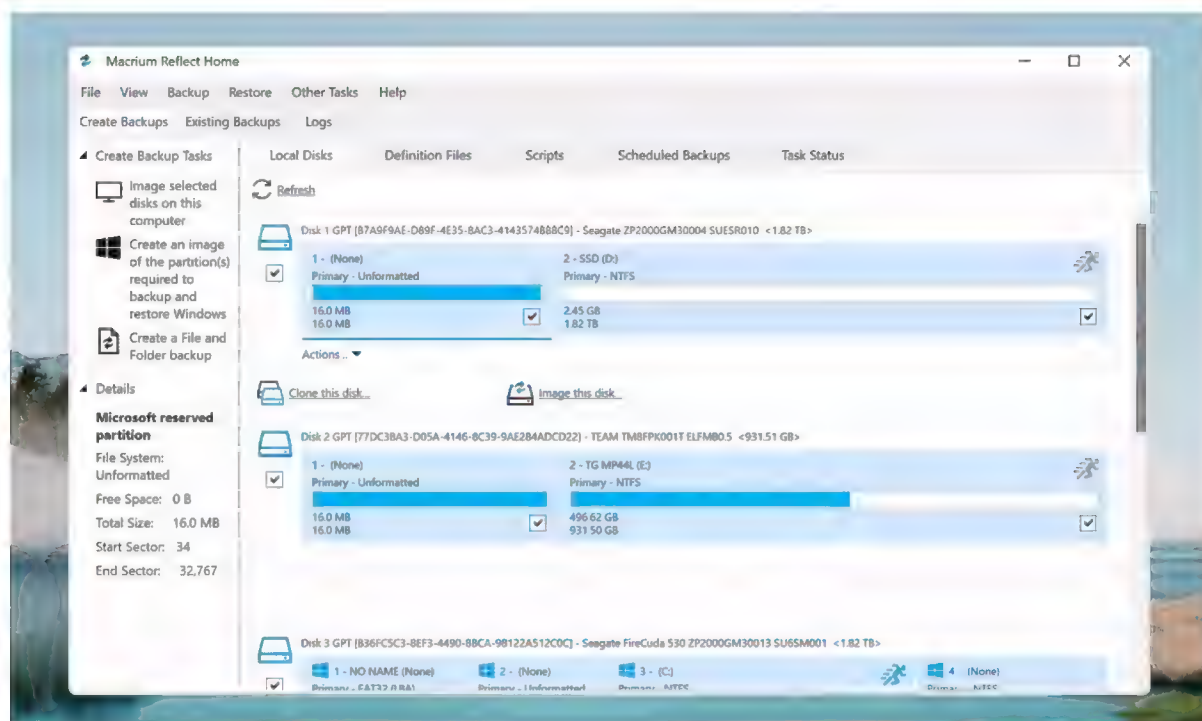
CONS

- Lower battery life than a Snapdragon X laptop.
- Fans can be loud.
- No Copilot+ PC AI features at launch.

BOTTOM LINE

The Asus ProArt PX13 is a creator-focused laptop with impressive CPU performance thanks to its AMD Ryzen AI 300 series hardware. But, while this x86 machine has power and beauty, AMD's latest hardware still falls behind Arm PCs when it comes to fan noise and battery life.

From \$1,699



Macrium Reflect Home 8: An exceptional imaging and backup program

This easy-to-use but feature-filled imaging backup program is a favorite and rivals R-Drive Image for long-lived success. **BY JON JACOBI**



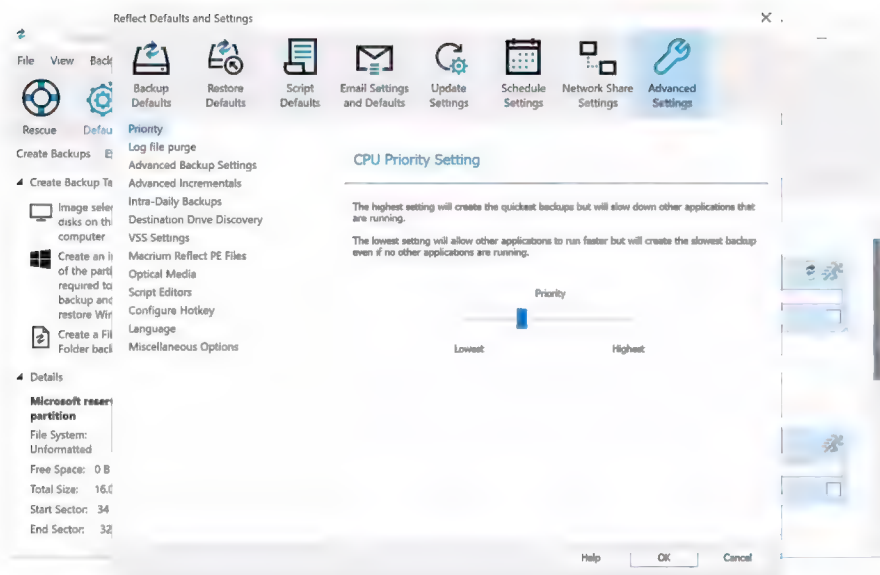
I've been using Macrium Reflect in one form or another for almost as long as I've employed the top-rated

R-Drive Image (fave.co/3XRGUI3)—decades. It's been every bit as reliable when it comes to Windows backup, and that's saying something. I also find the interface a bit more attractive than its rival's.

The only tick in the negative column has always been price, though there's a feature-limited free edition floating around out there. More on that in a bit.

FEATURES

Macrium Reflect Home Edition is an imaging program. That is, it creates container files with all the sectors containing information



Macrium Reflect is absolutely rife with options.

from a drive or partition. That includes the OS and applications. It will even copy blank sectors if you want a perfect duplicate of the drive or partition.

Beyond that, it will also create the same type of container, but using only the files and folders you choose.

Reflect creates full (everything), incremental (all sectors changed since the last full or incremental backup), or differential (all changes since the initial full backup) images. You can also define how many versions are retained and at what point older files are purged.

Reflect doesn't offer the nearly universal VHD as a backup container option. However, it does include an option for vBoot, which creates

VirtualBox virtual machines from your Macrium backups, and includes the VirtualBox run time.

On the other hand, with Reflect installed, just double-click on a Reflect image (.mrimg) file and a dialog pops up offering a choice of drive letters for the image it will mount under Windows itself.

It would take quite a while to go through all of Reflect's options, but there's a plethora of them, including granular scheduling, network share definitions (user name/password), extremely granular retention rules, NTFS reparse rule behavior, passwords, compression settings, and notifications.

Macrium Reflect



Macrium Image Guardian

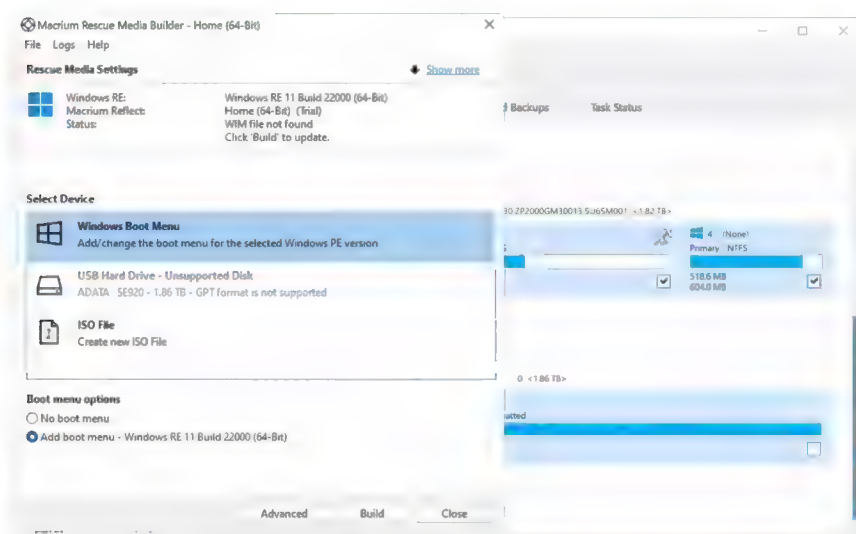
Macrium Image Guardian has protected your local backup destination drives

OK



For more information on Macrium Image Guardian please click [here](#)

The optional Guardian makes sure your image backups are not overwritten or deleted.



Macrium Reflect offers Windows PE/RE boot media, which worked perfectly in our testing.

There are also some unique options for how backups are appended to existing backups, automation scripts, and a background service that locks your backup images. The program even supports optical discs, for goodness' sake.

And of course, there's boot media. In this case Windows PE/RE. There's no Linux option—one of the few things I miss in Reflect.

PRICE

I mentioned that Reflect Home is pricey: \$80 for

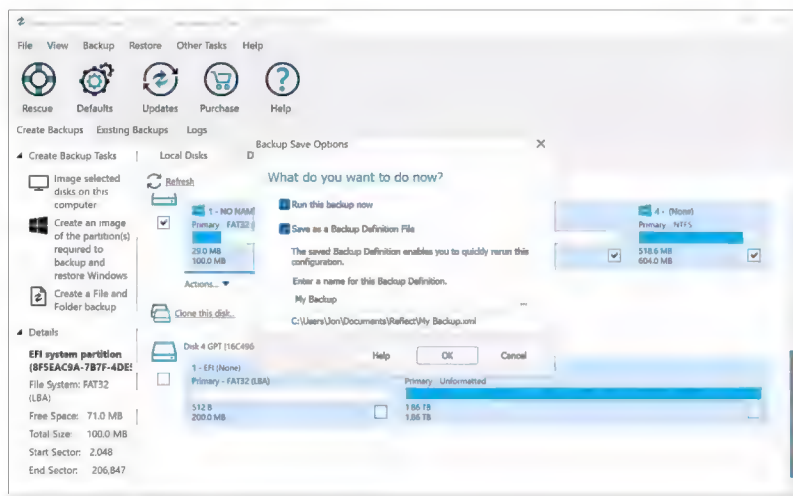
a perpetual license with free minor upgrades and a year of support, or \$40 yearly. That's a lot more than the \$45 one-time purchase for R-Drive Image, our current top pick in imaging backup.

However, unlike R-Drive image, which is pay only, Macrium Reflect is available in the aforementioned, feature-limited free

version, though it was discontinued by Macrium in 2023, and you can't get it on the company's website.

Home Annual Plan	One-Time Purchase
Best for long term value, giving you access to Home Exclusive Support, the latest new features and upgrades	Buy once and own Reflect Home version 8 with access to minor updates and one year of support only
1 Computer	1 Computer
\$49.99 \$39.99 / year	\$79.99
<ul style="list-style-type: none"> ✓ From as little as \$3.33 per month ✓ Home Exclusive Support includes Direct access to our experts with a maximum same day (24 hours) response for the lifetime of your plan ✓ One free setup call getting you started if needed ✓ Access all future releases (new features & latest fixes) ✓ Email, Customer Forum and Knowledgebase included 	<ul style="list-style-type: none"> ✓ Home Essentials Support for 1 year (Support cannot be extended) ✓ Access to minor updates & fixes for this version only ✓ Email, Customer Forum and Knowledgebase included

There are two ways to buy Macrium Reflect: perpetual and yearly.



Post-backup definition options.

Instead, search “Macrium Reflect Free” and you’ll find it available from download aggregate sites such as TechSpot ([fave.co/4e4pgif](https://www.techspot.com/downloads/4442-macrium-reflect-free/)) and Filehorse ([fave.co/3YM56ow](https://www.filehorse.com/download-macrium-reflect-free/)). Macrium does offer free 30-day trials ([fave.co/3ACJb9d](https://www.macrium.com/reflect/free-trial)) so you can kick the tires of Home Edition and other versions. You should.

PERFORMANCE


As I said up top, the program has been uber reliable for me. For a brief time I used it instead of R-Drive Image, and for a longer period of time I used them in tandem. Yes, two images. When you need to work on a client’s system, you can never be too careful.

In my testing for this article, Reflect impressed me with its speed, stability, and complete lack of glitches—a breath of fresh air after a few recent reviews. Boot disc creation and operation were as smooth and

drama-free as the main app—another area of weakness with many backup programs.

Also, as I confessed above, I think the interface is one of the best, if not the best, in the business. It’s logical, attractive, as well as highly informative, and will likely sit better with many users than R-Drive’s.

BOTTOM LINE

Using the word “Home” in the title is doing a disservice to a program that’s this speedy, reliable, and feature-laden. By all non-enterprise criteria, Macrium Reflect is definitely “Pro.” The issue for many will be the price, but that’s for you to decide. I will say, that if you do plop down the coin, you’ll almost certainly be happy with it. 

Macrium Reflect Home 8



PROS

- Full drive and file/folder backup.
- Exceptionally easy interface.

CONS

- Not cheap.
- Proprietary container files.

BOTTOM LINE

There’s no easier, more reliable imaging backup software than Macrium Reflect. It’s a bit on the pricey side, though.

From \$40 per year

Asus ROG Swift PG32UCDP: A spectacular OLED monitor

The Asus ROG Swift PG32UCDP is an excellent 32-inch 4K OLED monitor capable of running at 480Hz at 1080p, too. **BY MATTHEW S. SMITH**



PCWorld
EDITORS'
CHOICE

OLED monitors, which already delivered exceptional SDR image quality in 2023, have improved this year thanks to a wider range of options from dozens of monitor makers. Samsung's QD-OLED panel,

which took the lion's share of attention in 2023, is now joined by a new generation of LG WOLED panels that are more competitive than their predecessors. The Asus ROG Swift PG32UCDP is a great example of what LG WOLED panels can achieve—complete with a

nifty feature that lets you choose between maximum fidelity and maximum smoothness while gaming.

SPECIFICATIONS

The Asus ROG Swift PG32UCDP, like most other 32-inch OLED monitors, has a maximum resolution of 3840×2160 and a refresh rate of up to 240Hz. But unlike most 32-inch OLED monitors, it also has a 1,920×1,080 mode with a refresh rate up to 480Hz, which is designed to offer peak motion clarity for competitive gamers.

Display size: 32-inch 16:9 widescreen

Native resolution: 3,840×2,160/
1,920×1,080 (dual resolution mode)

Panel type: 240Hz/480Hz (dual
resolution mode) WOLED

Refresh rate: Up to 480Hz (at 1080p)
and 240Hz (4K)

Adaptive Sync: Adaptive Sync, AMD
FreeSync Premium Pro, Nvidia
G-Sync Compatible

Ports: 2× HDMI 2.1, 1×
DisplayPort 1.4 with Display
Stream Compression, 1× USB-C
with DisplayPort Alternate Mode
and 90 Watts of Power Delivery,
1× USB-B 3.2 (upstream), 3×
USB-A 3.2 Gen 1 (downstream),
3.5mm audio out, 1× SPDIF

VESA mount:
100mm×100mm

Speakers: No

Price: \$1,299 MSRP

Asus also packs the monitor with connectivity. It has two HDMI 2.1 ports and one DisplayPort 1.4, all of which can handle the monitor's maximum resolution and refresh rate. USB connectivity includes a USB-C port with DisplayPort and 90 watts of power delivery for charging devices, as well as three downstream USB-A ports. The 3.5mm audio jack is joined by SPDIF for an alternative audio.

DESIGN

The ROG Swift PG32UCDP, like other Asus gaming monitors, has a black and gunmetal design that includes thin display bezels on all sides. Compared to alternatives like LG's UltraGear 32GS95UE-B (fave.co/46Op4kw) and the Alienware AW3225QF (fave.co/4dKMHWj), the Asus has an edgier look that works in a gaming den but might seem out of place in a home office.



The ROG Swift PG32UCDP has a black and gunmetal design.

The monitor has two RGB LED lighting features, one on the rear of the panel and one beneath the stand, which add flair to your desktop. They're Aura Sync compatible, so they can be synced with other Asus Aura Sync devices. Both RGB LED lights offer a good variety of customization options, and I didn't find them overly bright at their default settings.

Like other Asus ROG monitors, the Swift PG32UCDP has a wide tripod-style stand that takes up more space than necessary. It also sits closer to the viewer than most, which can prove awkward if your desk is only 25 or 26 inches deep. LG's similar UltraGear 32GS95UE-B has a smaller, flat stand, so the desk space it occupies is still usable. Asus' stand offers ergonomic adjustments for height, tilt, swivel, which is standard for a

monitor in this price range. The height adjustment was stiffer than I prefer, however.

While I'm not a fan of the default stand's size, Asus offers a 100mm×100mm VESA mount for connecting a monitor arm or a different stand. Asus offers an ROG-branded ergonomic arm (fave.co/4dpqDrl) that can be used with the Swift PG32UCDP and other Asus ROG monitors. I haven't tested this arm, but the design matches Asus' ROG aesthetic.

Unlike most competitors, the ROG Swift PG32UCDP includes a threaded mount at the top of the stand. It can be used to attach a streaming camera or a light.

CONNECTIVITY AND MENUS

Asus offers a solid range of connectivity with the ROG Swift PG32UCDP. Its video inputs include two HDMI 2.1 ports, one DisplayPort 1.4, and a USB-C port with DisplayPort Alternate Mode, for a total of four inputs. All video inputs can handle the monitor's maximum resolution and refresh rate.

The USB-C port also provides 90 watts of power delivery. While it doesn't provide enough power for a typical gaming laptop, it can charge most thin-and-light and midrange consumer notebooks. The USB-C port also connects to three



Like other Asus ROG monitors, the Swift PG32UCDP has a wide tripod-style stand.

downstream USB ports, providing connectivity for wired devices like a gaming keyboard or an external hard drive. If you don't have a USB-C port on your computer, the USB-A ports can be driven by a USB upstream port.

The Swift PG32UCDP is one of several monitors to offer an SPDIF audio out. This is a popular choice for sound bars and home theater speakers, making the ROG Swift PG32UCDP more viable as a small television. A few monitors, like the Alienware AW3225DWF, also offer SPDIF, but most don't. A 3.5mm audio out is still available.

Asus' on-screen menu provides easy access to options through a responsive and intuitive joystick control centered on the display's lower bezel. The monitor's menu options are well labeled and offer a wide range of image-quality controls, including precise color temperature and gamma adjustments. Also, like other Asus OLED monitors I've recently tested, this one has a uniform brightness mode. It lowers the brightness of the OLED panel overall but prevents the brightness swings that can sometimes occur with OLED displays.

My only complaint about the on-screen menu is that the text is too small for people with less than perfect eyesight. However, Asus provides a software utility that is



The on-screen menu provides easy access to options.

available on Windows and can be used to adjust most monitor settings. The utility is more accessible and easier to use.

The monitor also includes a range of gaming-centric features, such as a shadow booster to reveal foes in dark areas of a map, an on-screen crosshair, and a magnification feature to assist in sniping distant enemies. And like many other OLED gaming monitors, the Swift PG32UCDP offers alternative display size modes that restrict the viewable area to that of a 27-inch or 24-inch monitor—a feature that competitive gamers may find useful.

The monitor doesn't have speakers, which is a minor disappointment but not unusual for a gaming monitor. Most competitors also lack speakers. LG's UltraGear 32GS95UE-B ([fave.co/3M6GTIt](https://www.fave.co/3M6GTIt)) is a notable exception, as it has a unique Pixel Sound system that ranks among the best audio available from a monitor.

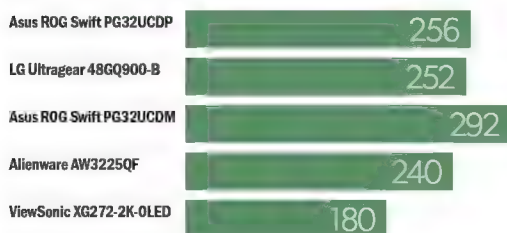
SDR IMAGE QUALITY

The Asus ROG Swift PG32UCDP has an LG WOLED display panel. We've tested the panel in the 27-inch size with prior monitors like the Asus ROG Strix XG27AQDMG (fave.co/4dL9RTB) and found that while it performs well, it has trade-offs when compared to monitors with Samsung QD-OLED panels, such as the Alienware AW3225QF (fave.co/4dKMHwJ) and Asus ROG Swift PG32UCDM (fave.co/3AASDdc). The Swift PG32UCDP doesn't change the story, but it's an excellent monitor overall.

SDR brightness is an area where LG WOLED and Samsung QD-OLED monitors tend to perform similarly, and the Asus ROG Swift PG32UCDP was as bright as expected. Its maximum measured SDR brightness of 256 nits is fine for most situations but might look a little dim if the monitor is used in a room with bright sunlight. Shoppers looking for brighter SDR performance should consider a Mini-LED display instead.

Maximum SDR Brightness

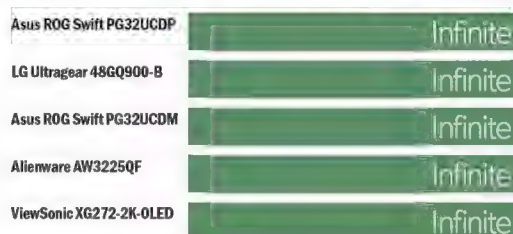
Nits



LONGER BARS INDICATE BETTER PERFORMANCE

Contrast Ratio

50% brightness

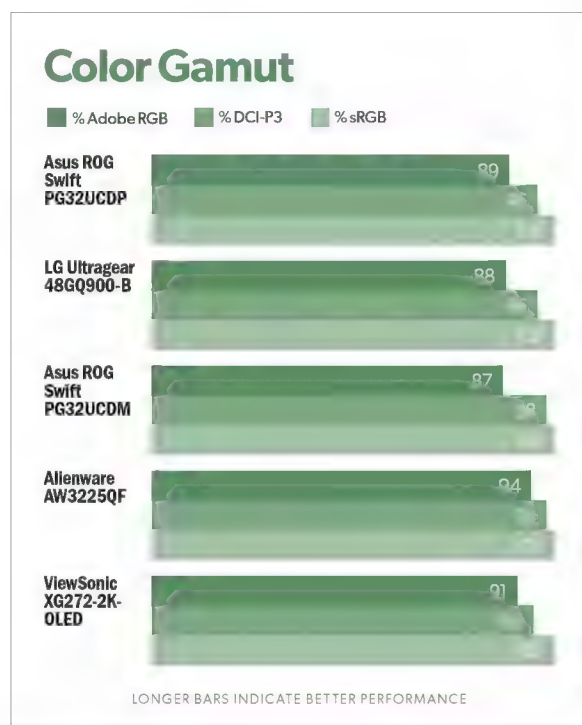


LONGER BARS INDICATE BETTER PERFORMANCE

The Swift PG32UCDP's contrast is exceptional, with an effectively infinite contrast ratio thanks to the LG WOLED panel's ability to reach a perfect minimum brightness of zero nits when required. This provides an exceptional sense of depth and immersion, especially when enjoying a movie or playing a game. The same is true of other OLED panels and monitors, though, so the Asus doesn't have an edge here.

Color performance is where the LG WOLED and Samsung QD-OLED panels start to differ. The LG WOLED panel tends to have a slightly narrower color gamut than QD-OLED. As a result, the Swift PG32UCDP can achieve only 96% of DCI-P3 and 89% of Adobe RGB. These are still excellent results that allow the Asus to deliver a punchy and vivid image. However, when compared to the Alienware AW3225QF, which has a QD-OLED panel, the Swift PG32UCDP falls behind.

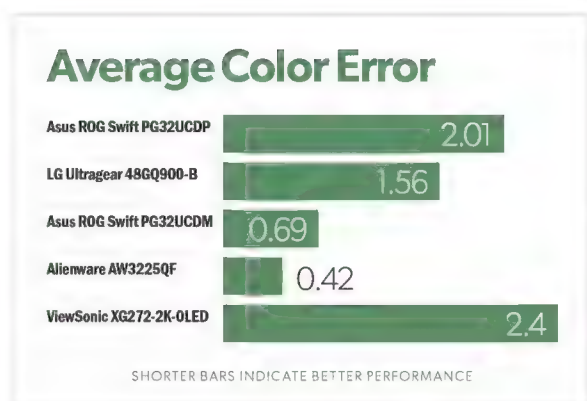
Personally, I think this is more of a concern for content creators than it is for gamers. This



difference in color gamut won't noticeably change how games look on the Asus ROG Swift PG32UCDP versus the Alienware AW3225QF or Swift PG32UCDM. However, content creators who need to work in a wide color gamut, like DCI-P3 or Adobe RGB, would be better off with a QD-OLED monitor.

Color accuracy also swings in favor of the QD-OLED monitors. The Asus ROG Swift PG32UCDP had a color error of 2.01, which is not bad and not noticeable in most situations. However, as the graph shows, the Alienware AW3225QF and Swift PG32UCDM are far more color accurate out of the box.

Clearly, there's a difference in out-of-box color accuracy between LG WOLED and



Samsung QD-OLED panels. WGOLED monitors like the Asus ROG Swift PG32UCDP, LG Ultragear 32GS95UE-B, and ViewSonic XG272-2K-OLED all perform behind Samsung QD-OLED monitors in color accuracy at default settings. This isn't a huge issue because color accuracy can be improved with calibration, and all of these readings are not bad to begin with. Still, if you want the most accurate color possible, you will see better results with the QD-OLED options.

The Asus ROG Swift PG32UCDP performed well in color temperature and gamma tests, with an out-of-the-box color temperature of 6700K and a gamma curve reading of 2.3. These are slightly off the targets of 6500K and 2.2, indicating the image is a little cooler and a tad darker than our preference. However, both deviations are small and unlikely to be an issue for most people.

Sharpness is a perk of the 32-inch 4K panel. The pixel density of the monitor overcomes some of the sharpness issues that

1440p OLED monitors can show. You will still see a sharper image with a 32-inch or 27-inch 4K IPS monitor, but given the other trade-offs, I think most people will agree that the OLED display is the better choice.

On the whole, the Asus ROG Swift PG32UCDP's SDR image quality is strong. It has excellent contrast, great sharpness, and good color performance, but it's not especially bright. Some QD-OLED monitors are even better in color performance, but the ROG Swift PG32UCDP still performs well enough for all but the most demanding users and shoppers. Games, movies, and photos all look outstanding.

HDR IMAGE QUALITY

The Asus ROG Swift PG32UCDP's SDR performance is a tad behind monitors with a Samsung QD-OLED panel. Fortunately, the Asus is able to strike back in another key aspect of image quality: HDR.

The Swift PG32UCDP had a maximum full-screen sustained HDR brightness of about 260 nits, which is similar to its SDR performance. However, when only 50% of the display is lit, brightness increased to a maximum sustained peak of 407 nits. When only 10% is lit, that improved further to a sustained peak of 730 nits. These figures are better than 32-inch monitors with a Samsung



The monitor's motion clarity is stunning.

QD-OLED panel. For example, the Alienware AW3225QF achieved a maximum brightness of 480 nits when 10% of the display was lit. In general, the Swift PG32UCDP has a brighter, punchier HDR experience than most OLED monitors on the market.

The Swift PG32UCDP also has practical features that make for a better HDR experience. It does a good job handling SDR content on the Windows desktop when HDR is on, meaning that SDR content won't look horribly washed-out or strangely colored—a problem that can occur on some less capable HDR monitors. There's also a brightness adjustment option when HDR is on. Using it will cause HDR content to look different than what the creator intended, but it's helpful if you feel the HDR content you're viewing is too dim or bright.

The Asus ROG Swift PG32UCDP is among the best 32-inch OLED monitors for HDR

content. Its only rival is the LG Ultragear 32GS95UE-B, which also, of course, has an LG WOLED panel.

MOTION PERFORMANCE

The Asus ROG Swift PG32UCDP's most interesting feature might be its dual-mode display. It can display 4K resolution at up to 240Hz, or it can lower the resolution to 1080p at up to 480Hz. This is a feature that Asus shares with other 32-inch LG WOLED monitors like the LG Ultragear 32GS95UE-B, but it's otherwise uncommon. The 480Hz refresh rate is the highest available so far from a consumer OLED panel.


Motion clarity is stunning. OLED panels already tend to look great at 240Hz due to their low pixel response times, which reduce motion blur. But if you want to see the next level of clarity, the 1080p 480Hz mode has you covered. Games at 480Hz look almost perfect in motion clarity. Even the smallest details are clear when rapidly panning the camera or moving quickly through a scene. It's not truly perfect, but the improvement over even 240Hz is so dramatic that it can feel that way. Motion clarity absolutely rivals, and perhaps exceeds, 500Hz IPS monitors like the Aliware AW2524H (fave.co/3SR1aiE).

The Swift PG32UCDP's motion performance is further enhanced by its adaptive sync support, which includes official AMD FreeSync Premium Pro and NVIDIA G-Sync Compatible certification. Simply put, it

should work with any video card on the market and provide smooth, stutter-free gameplay.

BOTTOM LINE

The Asus ROG Swift PG32UCDP is a jaw-dropping OLED monitor with a crisp 32-inch 4K image, yet also provides a 1080p 480Hz mode for extreme motion clarity. That makes it unusually versatile: it's great for both immersive AAA games and fast-paced, competitive multiplayer titles. It backs these perks with superb HDR performance and a wide range of connectivity that includes USB-C and multiple downstream USB ports.

It's hard to go wrong with a flagship 4K 32-inch OLED monitor right now, and the Asus ROG Swift PG32UCDP is an outstanding option. It's especially well suited if you want top HDR performance and extreme motion clarity. 

Asus ROG Swift PG32UCDP



PROS

- Excellent 4K OLED image quality.
- Bright HDR.
- Up to 480Hz refresh rate at 1080p.
- Includes USB-C connectivity.

CONS

- Stand is too wide and deep.
- Color performance is great, but behind some competitors.

BOTTOM LINE

Asus ROG Swift PG32UCDP is an excellent 32-inch 4K OLED monitor capable of running at 480Hz at 1080p, too.

\$1,299



Dell Inspiron 14 Plus: A competent Snapdragon X laptop

Wait for a sale on this one. **BY CHRIS HOFFMAN**

The Dell Inspiron 14 Plus 7441 (fave.co/3STWyse) is Dell's entry in the first wave of Copilot+ PCs (fave.co/3SToo7O) with Qualcomm Snapdragon X hardware. Dell delivered a perfectly serviceable PC here, and many people would be happy using this laptop for the kind of light tasks a Snapdragon PC excels at (fave.co/46NIqGm).

But this PC doesn't stand out alongside other Snapdragon X laptops like Microsoft's Surface Laptop (fave.co/3X7OXJ5), Lenovo's Yoga Slim 7x (fave.co/3yMvF2l), and Samsung's Galaxy Book4 Edge (fave.co/3MbYliU). Qualcomm and Microsoft are proud of the number of PC manufacturers delivering Snapdragon X laptops at launch, and this is definitely a perfectly fine entry from

Dell. It feels like this machine was made to check a box: Yes, Dell also has a Snapdragon laptop. Still, this is a fine laptop—and at the right sale price, it may be a great choice!

Like other Copilot+ PCs with Snapdragon X hardware, the Dell Inspiron 14 Plus (7441) is an Arm-based laptop. As discussed in PCWorld's reviews of the Surface Laptop ([fave.co/3X7OXJ5](https://www.pcworld.com/article/3X7OXJ5)), Surface Pro ([fave.co/3YPPm3T](https://www.pcworld.com/article/3YPPm3T)), and Lenovo Yoga Slim 7x ([fave.co/3yMvF2l](https://www.pcworld.com/article/3yMvF2l)), application compatibility is decent but not perfect. Most applications run just fine, but some applications may not run at all or may run with bad performance. The situation is improving, but it's early days for this new hardware. Also, despite the AI hook the industry is using to market these laptops, those exclusive Copilot+ PC AI features aren't very interesting ([fave.co/4f3NQkw](https://www.pcworld.com/article/4f3NQkw)).

SPECS

The Dell Inspiron 14 Plus 7441 is another model in Dell's existing Dell Inspiron 14 Plus lineup. This model comes with Qualcomm Snapdragon X hardware instead of an Intel CPU, and it's one of the first Copilot+ PCs to arrive. All Snapdragon X Plus and Elite chips include a neural processing unit (NPU), [fave.co/3VJ0eyD](https://www.pcworld.com/article/3VJ0eyD), capable of 40 trillion operations per second (TOPS) as well as a Qualcomm Adreno GPU.

The base model Dell Inspiron 14 Plus (and the model we reviewed) comes with

Snapdragon X Plus hardware. That's the lowest tier of Snapdragon X hardware available—the other models are all branded as "Snapdragon X Elite." Snapdragon X Plus has 10 cores with no "dual-core boost" feature, while Snapdragon X Elite has 12 cores with a dual-core boost feature that can ramp up performance. However, you can spend more to upgrade this laptop to Snapdragon X Elite hardware.

Aside from the base-model Microsoft Surface Laptop, which matches the Dell Inspiron 14 Plus for starting pricing, I've seen most Copilot+ PCs ship with Qualcomm Snapdragon X Elite hardware standard so far.

Dell only offers this laptop with 16 GB of memory—there's no option for 32 GB of memory, as with some other Copilot+ laptops equipped with Qualcomm Snapdragon X Elite hardware.

Our review model did have 512 GB of storage. For that much storage, this particular laptop is \$100 cheaper than a comparable Surface Laptop. But a Dell Inspiron 14 Plus with 256GB of storage will cost you \$999, which is the same price as a base model Surface Laptop with the same storage.

CPU: Qualcomm Snapdragon X Plus X1P-64-100

Memory: 16 GB LPDDR5X RAM

Graphics/GPU: Qualcomm Adreno

Display: 14-inch 2560×1600 IPS display with 60Hz refresh rate, touch screen, and 16:10 aspect ratio

Storage: 512 GB PCIe SSD

Webcam: 1080p webcam

Connectivity: 2× USB Type-C (USB4 Full Function), 1× USB Type-A (USB 3.2 Gen 1), 1× combo audio jack, 1× microSD card reader

Networking: Wi-Fi 7, Bluetooth 5.4

Biometrics: IR camera and fingerprint reader

Battery capacity: 54 watt-hours

Dimensions: 8.81×12.36×0.67 inches

Weight: 3.17 pounds

MSRP: \$1,099 as tested (\$999 starting price)

DESIGN AND BUILD QUALITY

The Dell Inspiron 14 Plus's design is fine. Despite the flashy new internals thanks to the new Snapdragon X Plus ARM hardware, the laptop's body is based on Dell's existing Inspiron designs. This is the spitting image of

the Intel-powered Dell Inspiron 14 Plus ([fave.co/49EfdOa](https://www.fave.co/49EfdOa)), which we called a well-rounded machine when we reviewed it earlier this year.

It's a fine design, and there's nothing objectionable about it. There are lots of smooth edges. The laptop's chassis uses a good amount of aluminum, but there are also plastic elements: for example, around the display. There's not any noticeable flex while typing, but there is a bit of flex while handling the display.

The modern Inspiron design does have a neat little feature. When you tilt the screen back, the keyboard will angle up toward you. It's a nice touch.

Microsoft has set the Copilot+ PC standard with its Surface Laptop. There's really no writing about a Copilot+ PC with Snapdragon X hardware without mentioning the Surface Laptop, and the Surface Laptop's all-metal construction feels much more solid and premium. That's a big thing to keep in mind when these machines start at the same price and both have Snapdragon X Plus hardware.

Additionally, while this is a nice compact laptop and it's reasonably light, it's not the lightest Copilot+ PC.

Weighing in at 3.17 pounds, this system is heavier than both



The laptop's body is based on Dell's existing Inspiron designs.



The entire surface of the keyboard deck feels comfortable.

Microsoft's Surface Laptop and Lenovo's Yoga Slim 7x.

The chassis is nice enough. It's fine and perfectly serviceable. But it just doesn't stand out in comparison to similarly priced Copilot+ laptops.

KEYBOARD AND TRACKPAD

The Dell Inspiron 14 Plus has a good keyboard. I enjoyed typing on it—it's not mushy, although it's not the snappiest, most premium laptop keyboard I've used. The entire surface of the keyboard deck feels comfortable. It also includes white backlighting.

When we reviewed the Intel model, we said it had "an unreasonably good keyboard," and I think that's carried through to the Snapdragon version of the laptop here. It's a

good keyboard, but I'm not sure that feature alone is enough to stand out in the Copilot+ PC market. Lots of these Copilot+ PCs have nice keyboards.

The trackpad is a reasonably good size and it is just fine to use. I didn't have any problems with palm rejection. But the Surface Laptop offers a haptic trackpad at the same price point, and in my experience that option offers a much nicer trackpad experience.

DISPLAY AND SPEAKERS

The Dell Inspiron 14 Plus includes a good IPS display. With a 2560×1600 resolution, 16:10 aspect ratio, 60Hz refresh rate, 400 nits of brightness, and a touchscreen, it's not something you can complain about. This isn't the vivid OLED display offered by some Copilot+ PCs like the Lenovo Yoga Slim 7 or the Samsung Galaxy Book4 Edge, but I was plenty happy using it. (Of course, those OLED displays are extremely beautiful—and I really would prefer an OLED display).

The 13.8-inch Surface Laptop offers a slightly smaller display with a slightly lower resolution, but it also offers double the refresh rate at 120Hz and up to 600 nits of brightness. So, while the Inspiron 14 Plus's display is fine, the Surface Laptop outshines it—literally, thanks to that higher brightness.



The Inspiron 14 Plus has a 2560×1600 IPS display.

Like the keyboard, the speakers on this machine are surprisingly good. There are a total of four speakers, and they're plenty loud, reasonably clear, and even have more bass than I'd typically expect from a laptop of this size.

WEBCAM, MICROPHONE, BIOMETRICS

The Dell Inspiron 14 Plus has a 1080p webcam. It's a good webcam that worked well in a variety of lighting conditions. Thanks to the neural processing unit (NPU) and Copilot+ PC features, you have access to a variety of extra effects for the webcam via Windows Studio

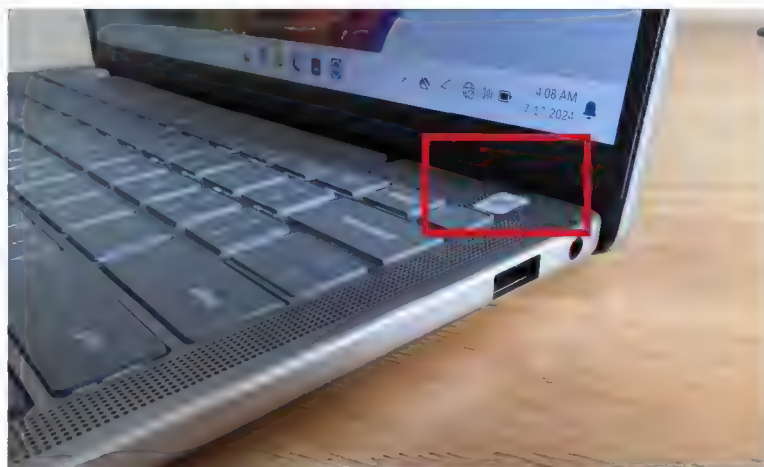
Effects. For example, you can make it look like you're always making eye contact with the camera or add various effects to your visage in real time.

Additionally, Dell also includes a physical privacy shutter, and you can turn off the camera by sliding the shutter switch above the webcam.

This machine also includes a presence sensor, so it can automatically go to sleep when you step away and turn on when you come back. Microsoft

omitted this feature from the Surface Laptop for some reason.

The dual-microphone hardware in this laptop works well, too, and it did a good job of picking up my voice without a lot of background noise. The combination of a



The presence sensor (highlighted in red) allows you to put the laptop to sleep when you step away from the device.

nice webcam and microphone with long battery life—not to mention the good speakers—means this will be a great laptop for online meetings.

Biometrics are one area where the Dell Inspiron 14 Plus stands above the Surface Laptop. This machine includes both an IR camera for facial recognition as well as a fingerprint reader in the power button at the top-right corner of the keyboard. While I personally prefer the facial recognition on a laptop—it will log you in quickly once you open up the laptop—some people do prefer the fingerprint reader, and you have both here. Both the fingerprint reader and IR camera work well.

CONNECTIVITY

The Dell Inspiron 14 Plus offers a reasonable selection of ports. On the left side, you've got a microSD card reader as well as two USB Type-C ports—these are USB4 “Full Function” ports that support 40Gbps transfer speeds, Power Delivery, and DisplayPort. You will be plugging the charger into one of these ports to charge the laptop.

On the right side, you've got a USB Type-A port along with a combo audio jack. It's a reasonable selection of ports on a thin-and-light laptop.



The laptop has a reasonable selection of ports.

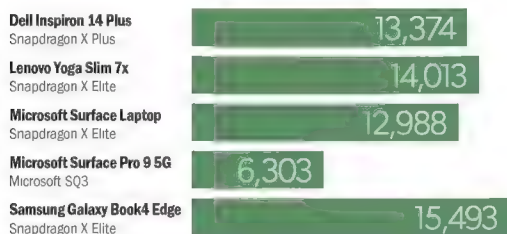
Like other Qualcomm Snapdragon X-powered Copilot+ PCs, this machine includes Wi-Fi 7 and Bluetooth 5.4 support. However, Windows 11 only supports Bluetooth 5.3 at the moment. The Wi-Fi worked well, although I don't have a Wi-Fi 7 router set up to test the latest standard yet.

PERFORMANCE

Like other Copilot+ PCs with Qualcomm Snapdragon X Plus or Snapdragon X Elite hardware, the Dell Inspiron 14 Plus works well in day-to-day desktop use, with snappy desktop application performance on battery power. It offers a great experience when using common PC productivity applications including web browsers (fave.co/464jc6g), Microsoft Office apps, the Slack workplace chat app, and videoconferencing tools. The fans are nice and quiet in this type of daily use, and the PC stays

Geekbench 6

Multi-threaded performance



LONGER BARS INDICATE BETTER PERFORMANCE

Cinebench R24

CPU performance



LONGER BARS INDICATE BETTER PERFORMANCE

cool and quiet unless you push it hard, as we did in some of our benchmarks.

As always, we ran the Dell Inspiron 14 Plus (7441) through our standard benchmarks (fave.co/4cjKcl4) to see how it performs.

First, we ran a CPU benchmark with Geekbench 6. We normally run PCMark 10, but it doesn't run on Arm computers like this one. Geekbench 6 runs natively on ARM, so we can get an idea of this machine's CPU performance when running native Arm code without Microsoft's Prism translation layer playing a part.

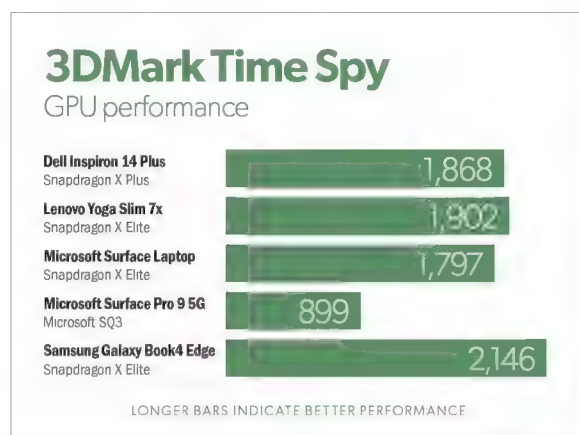
The Dell Inspiron 14 Plus 7441 delivered a Geekbench 6 multi-thread score of 13,374. That's a solid result and is right in the middle of the pack. Interestingly enough, it does beat the Surface Laptop's Geekbench 6 score in our testing. That model of Surface Laptop we benchmarked has Snapdragon X Elite hardware, so it's interesting to see the Qualcomm Snapdragon X Plus hardware performing so well in comparison to it.

The fans stayed nice and quiet while the native Geekbench benchmark was running. These machines tend to run hottest and loudest while running heavy workloads using x86 code through the Prism translation layer.

Next, we run Cinebench R24. Cinebench R24 has a native Arm version, which means it isn't running through the Prism translation layer. This is a heavily multithreaded benchmark that focuses on overall CPU performance. It's a quick benchmark, so cooling under extended workloads isn't a factor. But, since it's heavily multithreaded, CPUs with more cores have a huge advantage.

The Dell Inspiron 14 Plus's fans spun up while the multi-threaded Cinebench benchmark was running. On a Snapdragon X PC, they kick in to provide extra cooling for intensive workloads like the one in this test.

This machine delivered a multi-threaded score of 814. Unsurprisingly, that's a little

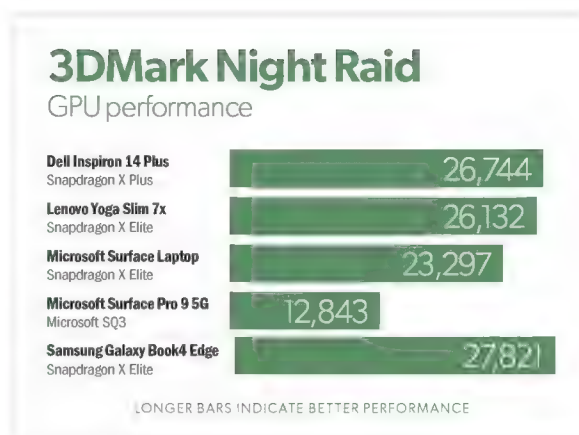


behind the Snapdragon X Elite-powered devices we're comparing it to.

Next, we run a graphical benchmark. Despite Qualcomm talking up gaming performance, this isn't really a gaming laptop (fave.co/4dEHNIK). We recommend against buying any Snapdragon X Plus or Elite powered laptop for gaming (fave.co/3Sb779H). Still, as always, we run 3DMark Time Spy, a graphical benchmark that focuses on GPU performance. We also run 3DMark Night Raid.

Time Spy is running through the Prism translation layer, while Night Raid is running natively on Arm. The pair of results shows the difference between x86 code translated with Prism and native Arm code.

With a 3DMark Time Spy score of 1,868, the Dell Inspiron 14 Plus came in right in the middle of the pack. (The Samsung Galaxy Book4 Edge we tested had the highest-end Snapdragon X Elite hardware with an upgrade Qualcomm Adreno GPU, hence its



advantage). The Surface Laptop with Qualcomm Snapdragon X Elite runs a tad behind the Dell Inspiron 14 Plus once again—perhaps that's a cooling issue. It's a good argument for getting the base model Surface laptop with Snapdragon X Plus hardware—the machine doesn't seem to be taking a lot of advantage of that Elite hardware.

When we ran the Night Raid benchmark, the Dell Inspiron 14 Plus delivered a score of 26,744. That's on the high end compared to the average Snapdragon X laptop, which is impressive. This machine is a bit larger and heavier than some of its competition, so the cooling may help it deliver higher performance.

Remember, the Dell Inspiron 14 Plus with Snapdragon X Plus has the same GPU as most Snapdragon X Elite laptops, except the Samsung Galaxy Book4 Edge with its top-end GPU.

Overall, the Dell Inspiron 14 Plus delivers strong performance for a Snapdragon X Plus

system and seems to have a good cooling system. The CPU performance is a tad on the slower side compared to most Snapdragon X laptops, but it's not a major issue—and it even seems to pull ahead of the Surface Laptop. Overall, Snapdragon X Plus hardware seems like a perfectly fine configuration for most people. These machines are best with light desktop productivity usage, and there's not a *huge* upgrade if you pay extra for Snapdragon X Elite.

BATTERY LIFE

We expect Snapdragon X Plus and Elite-powered laptops to deliver long battery life in our benchmarks. The Dell Inspiron 14 Plus pairs its Snapdragon X Plus hardware with a 54 watt-hour battery and that IPS display should help it deliver longer battery life than competing laptops with OLED displays, which tend to use more power.

To benchmark the battery life, we play a 4K copy of *Tears of Steel* on repeat on

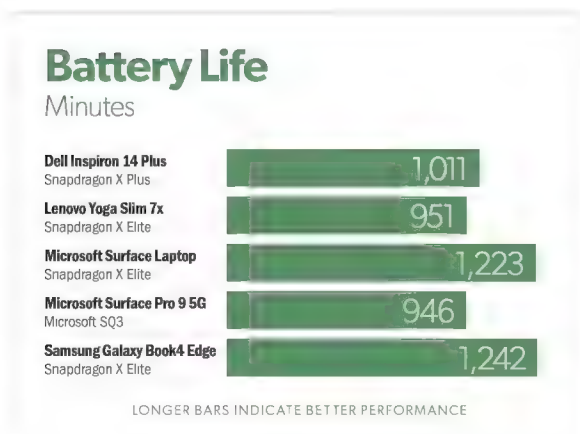
Windows 11 with airplane mode enabled until the laptop suspends itself. We set the screen to 250 nits of brightness for our battery benchmarks. This is a best-case scenario for any laptop since local video playback is so efficient, and real battery life in day-to-day use is always going to be less than this.

The Dell Inspiron 14 Plus lasted an average of 1,011 minutes or nearly 17 hours in our battery run-down test. That's behind Microsoft's Surface Laptop, which posted a result of 1,223 minutes or over 20 hours. Those numbers are so large that both sound fine, but remember that these are best-case scenario numbers and you will get substantially less runtime while you're actually using the PC. The Surface laptop gives you some extra margin to work with, and that may make all the difference.

BOTTOM LINE

The Dell Inspiron 14 Plus (7441) is a perfectly fine Copilot+ laptop with Snapdragon X Plus hardware. It has decent build quality, a nice keyboard, and good speakers. If you're looking for an Arm-based Windows laptop, you can't really go wrong with it.

Still, I don't think this laptop makes a ton of sense at its normal retail price. The Surface Laptop has similar hardware, a more premium build quality with no plastic, a much brighter display with a higher refresh rate, and a haptic touchpad that feels great to use. The Lenovo Yoga Slim 7x (fave.co/3yMvF2l)





The Inspiron 14 Plus (7441) is a fine Copilot+ laptop with Snapdragon X Plus hardware.

doesn't cost much more than this machine and delivers a beautiful OLED display along with very reasonably priced storage and RAM upgrade options.

The Dell Inspiron 14 Plus (7441) does have a few features the Surface Laptop doesn't have, such as a slightly larger display, a fingerprint reader, and a presence sensor. Still, at the same price as a Surface Laptop, I would recommend Microsoft's hardware at this price point. It's true that the 512 GB Dell Inspiron 14 Plus model we reviewed costs \$1,099, while the equivalent Surface Laptop costs \$1,199. However, the base-model Surface Laptop at \$999 has equivalent hardware to the base-model Dell Inspiron 14 Plus, and that base model is a good choice for many

Copilot+ PC buyers.

But the story doesn't end there: As I wrap up this review, Dell has the Inspiron 14 Plus (7441) on sale on its website. The 512 GB model with Snapdragon X Plus (fave.co/46PUU0o) is down from \$1,099 to \$899. That's \$100 cheaper than the base-model Surface Laptop and with double the storage. Or you can get the base-model

Inspiron 14 Plus laptop with 256 GB of storage (fave.co/4fNKQci) for \$849—that's \$150

cheaper than the base-model Surface Laptop and with similar specifications. It's a really good deal!

If the normal retail price was that compelling, this laptop *would* stand out. 🔥

Dell Inspiron 14 Plus



PROS

- Nice battery life thanks to Snapdragon X hardware.
- Good keyboard and speakers.
- A perfectly serviceable laptop experience.

CONS

- Base model includes slower Snapdragon X Plus hardware.
- Surface Laptop is the same price and a better value.
- Build quality, display, and specs just don't stand out.
- Copilot+ PC AI features are still a gimmick.

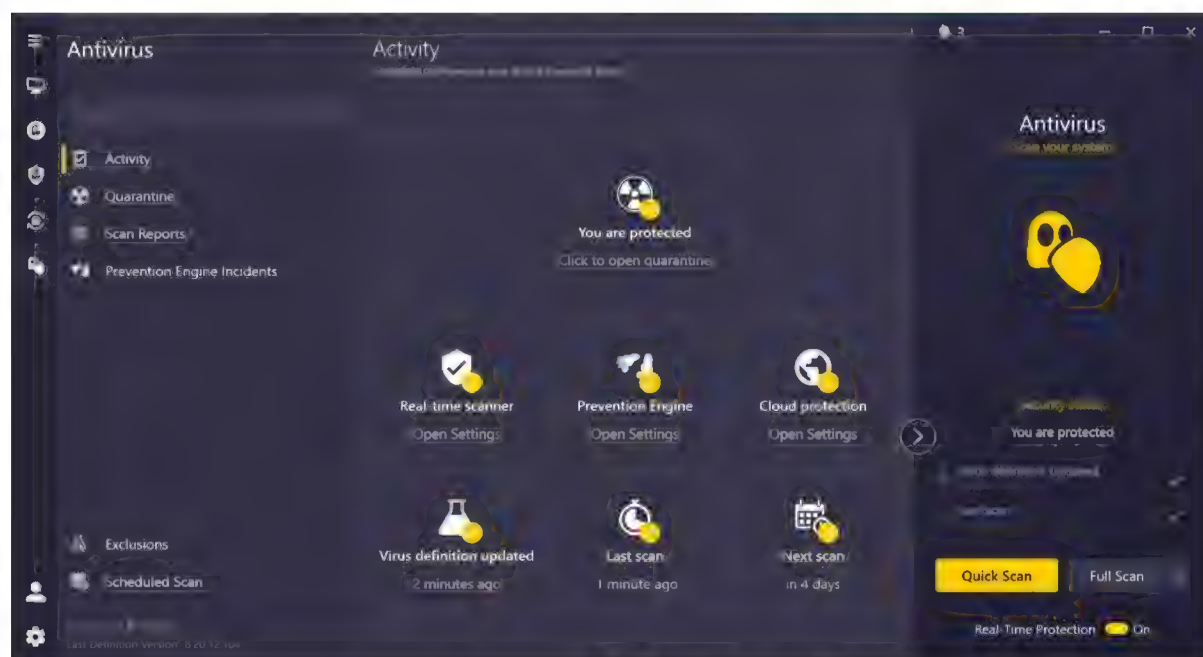
BOTTOM LINE

Dell's first Copilot+ PC is fine, but there's nothing about it that stands out in the Snapdragon X lineup. That's a problem when it costs as much as a Surface Laptop—but the right sale might make this machine a good buy.

From \$1,099

CyberGhost VPN: An easy-to-use VPN with a huge server network

When it comes to servers, CyberGhost can't be beat. **BY SAM SINGLETON**



Based in Romania, CyberGhost is owned by its parent company, UK-based security services conglomerate Kape Technologies.

The service itself has seen enormous growth in recent years and is now firmly entrenched as one of the leading VPN providers. It offers solid VPN features including seven simultaneous device connections, relatively good speeds, and a great server spread. In fact, boasting an absolutely colossal number of servers, sitting at over 9,000, it dwarfs most of its competitors in this area. I've been

impressed with CyberGhost in the past and decided to take it for another spin to see how it stacks up in an increasingly competitive VPN market.

CyberGhost VPN in brief:

P2P allowed: Yes

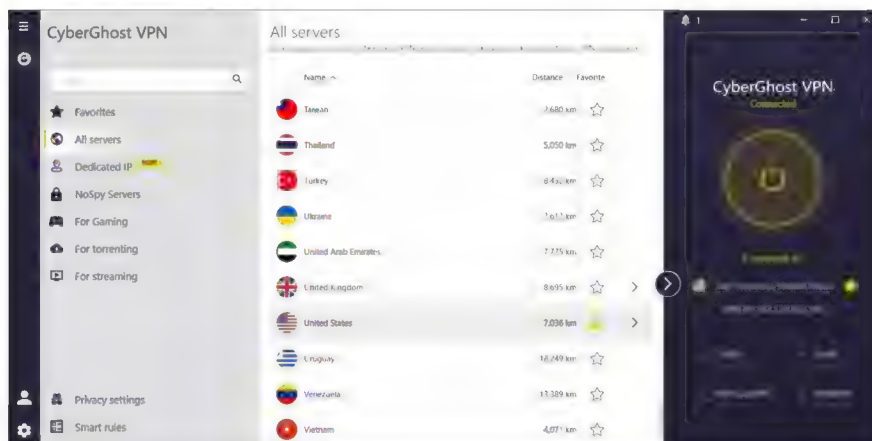
Simultaneous device connections: 7

Business location: Romania

Number of servers: 9,000+

Number of country locations: 120+

Cost: \$12.99 per month, or \$56.94 for a two-year subscription



CyberGhost's server network is the largest I've ever seen.

FEATURES AND SERVICES

The CyberGhost Windows app has an easy-to-use interface that's pleasantly simple and straightforward. It opens with just a small connection window anchored to the Windows taskbar, which can be expanded into a larger, fully disconnected window by clicking the arrow button.

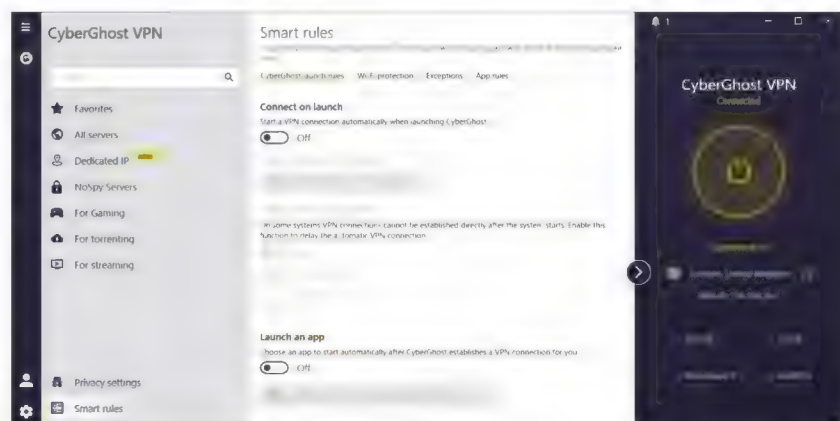
On the left rail you have options for My Account and Settings. To the right of that you have all of the different server options. These include menu items for Favorites, All Servers, Dedicated IP (if you have one), NoSpy Servers, For Gaming, For Torrenting, and For Streaming servers.

Many of these server options come from CyberGhost's rather unique legacy as a VPN

that offers servers based on use rather than location. While these options are all pretty self-explanatory, the For streaming section is noteworthy. Each server listed in this menu is optimized for a specific service and CyberGhost supports

unblocking for more than 35 services. For just the U.S. alone this includes Amazon Prime, Fox, HBO Max, Sling TV, Hulu, PeacockTV, Netflix, and others. When you're going overseas, or you'd like to access an overseas service from the U.S., CyberGhost offers an excellent selection.

The NoSpy Servers are also worth mentioning as they are all servers owned and operated in-house by CyberGhost. This



CyberGhost does offer some tweakable features, but they aren't as extensive as those of some competitors.

is rather unique, as most VPN providers work with third-party data centers to host their servers.

Under the server menu you'll find Privacy settings and Smart rules. The first has just a few basic features such as preventing DNS leaks, an automatic kill switch option, and a blocker option for domains that are known to serve ads, trackers, and malware.

While the service doesn't offer a ton of tools for power users, the Smart rules section does offer a few areas to tweak. Here you can set launch rules for the app, as well as access CyberGhost VPN's split tunneling feature to include or exclude certain websites or apps from the VPN.

These are interesting, but other top VPN providers such as NordVPN and Proton VPN offer even more features that can be considerably useful. Things such as multi-hop connections, onion-over VPN, and IP address rotation are all offered by competitors but lacking with CyberGhost.

When you choose an option from the server tabs, you'll find a list of all the servers available, which you can sort alphabetically by name, distance from your home IP address, and any favorite servers you've chosen. This is where CyberGhost shines. It offers a dizzying number of server locations—more than 9,000. That's more than pretty much any of the other top VPN companies. The abundance of choice here means you have more options to choose servers that suit

your needs, whether that be location or speed or something else.

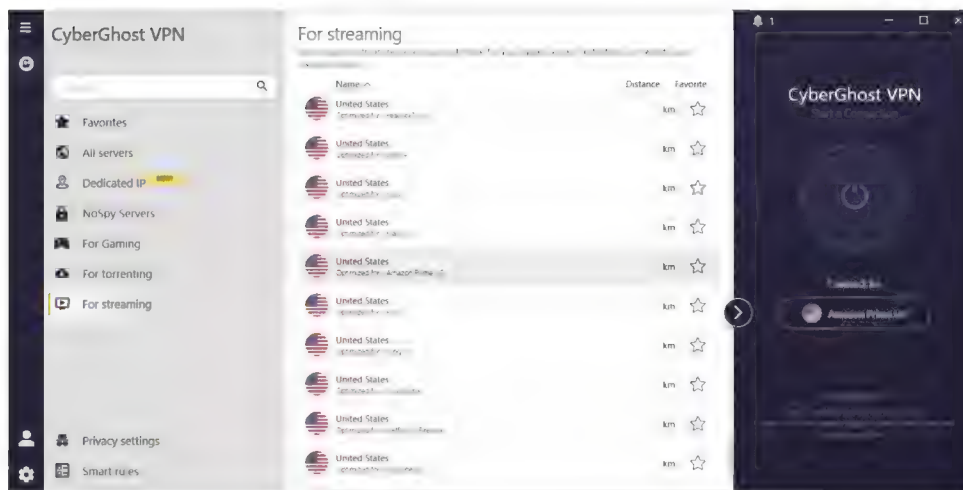
While connected to any of its servers, you're able to clearly see the server's IP address and location, data downloaded and uploaded while connected, the protocol used, and the time duration of the connection. All of this information is displayed in a very clear and tidy manner. While this may seem like a minor detail, some other VPN providers bury this pertinent information deep down in the settings or side menus.

Included with a subscription, you'll also have access to CyberGhost's Identity Guard feature that will scan for your email in known data breaches and alert you if it's found. And it also provides an ad- and tracker-blocker via the "Block content" feature under Privacy settings.

CyberGhost's VPN app is available for Windows, macOS, Linux, iOS, Android, Fire Stick TV, Android TV, and some routers.

PRICE

CyberGhost offers three subscription plans: one month, six months, and two years. The one-month plan is \$12.99 per month and the six-month plan is \$41.94. The two-year plan will set you back a total of \$56.94, or a very reasonable \$2.19 per month. With the two-year plan you'll receive an additional two free months, and it will change to a yearly subscription after the initial period. It's also



CyberGhost offers For Streaming servers that are optimized to work with specified streaming platforms.

worth noting that CyberGhost offers a generous 45-day refund policy on its long-term subscription plans (6 months or more), so you can give it a full test run before fully committing.

For an additional \$4.50 per month you can add CyberGhost's Security Suite which includes antivirus protection, and for \$5 per month you can get a dedicated IP for your VPN—currently there are 18 locations across 11 countries to choose from for the dedicated IP.

The monthly price for CyberGhost is a bit above the industry standard, even with the good feature set it offers. I wouldn't say it's expensive, but it is toward the high end. When you opt for the two-year plan, the price becomes much more affordable and makes CyberGhost one of the cheapest long-term subscriptions on the market.

that price is hard to argue with.

When signing up for CyberGhost, you need to supply an email address and password, and payment is accepted via credit card, GPay, PayPal, or Bitcoin.

PERFORMANCE

During my testing, I rated connection speeds across CyberGhost's servers in six different countries all around the world and then compared them to my baseline internet speed. CyberGhost server speeds were pretty good, although it didn't fall into our top five fastest VPNs (fave.co/3OWgSrf). Across all locations tested, the speeds averaged just over 47 percent of the base download speed and a much more impressive 89 percent of the base upload speed.

That doesn't appear great at first glance, but take those averages with a grain of salt. I

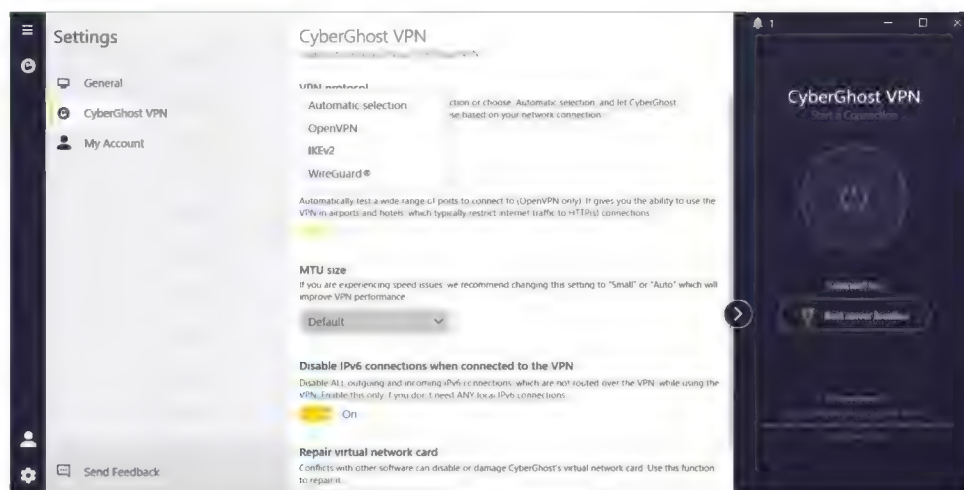
I generally recommend against long-term plans, though, as the VPN industry has a tendency to change and evolve rapidly, and two years is a pretty long commitment to make. Still,

saw some significantly different speed averages across regions. For example, of the servers I tested, those located in Asia and Africa were particularly slow, while the European and

U.S. servers were much faster. This may be due to CyberGhost employing more virtual VPN servers in Asia than in its home continent of Europe, but either way it is something to be aware of if you are traveling or living in these countries.

In regard to streaming, CyberGhost's speeds shouldn't necessarily be a worry. When I tested its streaming servers, while I found similar speed results, all of the content loaded without issues and streamed in buffer-free high-quality.

Interestingly enough, even while using any non-streaming servers, I never came across an issue accessing major streaming sites. I believe this makes CyberGhost a great VPN for those looking to bypass geo-restrictions or stream while traveling out of the country. Being able to utilize its huge server network to stream anywhere in the world is a nice bonus.



Most of the major VPN protocols are offered by CyberGhost, including WireGuard.

SECURITY AND PRIVACY

CyberGhost uses the industry-standard AES 256-bit encryption. For protocols, it provides WireGuard, IKEv2, and OpenVPN. WireGuard will likely be your best bet in most circumstances, as it's newer and generally known to be faster and more secure. IKEv2 and OpenVPN protocols are older but still have their uses. IKEv2, for example, has wide compatibility and is generally a good option should you want to use CyberGhost on your mobile device as well.

As mentioned previously, there is also the option to turn on an automatic kill switch, which will sever your connection to the internet should your VPN drop out for any reason. It's a nice feature to have to ensure that your actual address is never revealed should there be VPN issues. In my tests, the kill switch triggered successfully when the VPN lost connection.

As for privacy, CyberGhost lays it all out in its privacy policy (fave.co/3YQPRKZ). The basics are pretty straightforward. Right at the top the company says it does not track browsing history or traffic. It also says it doesn't store connection logs or timestamps, your IP address, or session durations.

It does, however, collect data on connection attempts, including the time they happened, country of origin, and the CyberGhost software version. It also tracks successful connections. CyberGhost says this information is sent to a third-party who collects the information in aggregate. The company says it uses this information to maintain its service, and none of the data collected contains personally identifying features.

To further back up its claim of privacy, CyberGhost had its no-logs policy confirmed via a successful audit by Deloitte (fave.co/4cvlQm4) in January 2024. I always like to see a company that takes steps like this to increase transparency and foster trust among its user base. This is now the second no-logs audit CyberGhost has completed since 2022, and I hope to see it continue to do that more frequently in the future.

CyberGhost operates out of Romania, which is a privacy-friendly country. While it's a member of the EU, it refuses to submit to EU data retention laws and is not a member of the Five, Nine, or Fourteen Eyes data-sharing alliances. You can feel safe that as long as CyberGhost remains in Romania, your data

(what little of it the service collects) will remain private.

BOTTOM LINE

CyberGhost is, as always, a very well-rounded VPN. The service has an incredibly vast server network, and the interface is well designed and easy to use. It also supports a wide range of streaming services all over the world, and it ultimately makes the right privacy promises (and backs them up too). Admittedly, the service isn't the fastest, and outside of the two-year plan, it can be a bit expensive. Power users who are dead set on optimizing and tweaking their connections might also feel a little hard done by, as configuration options with the service can be a bit sparse. But for the vast majority of VPN users, CyberGhost is still a great VPN service. 🔌

CyberGhost VPN



PROS

- Independently verified no-log policy.
- Seriously impressive server spread.
- Generous 45-day money-back guarantee.

CONS

- Server speeds can be hit-or-miss.
- Lacks some extra security features offered by competitors.

BOTTOM LINE

CyberGhost VPN continues to be an excellent VPN. The server network is unrivaled, the interface is easy to use, and the no-log audits are a huge privacy strong point. Overall, it scores well in just about every major category and gives users exactly what they want from a VPN.

From \$13 per month

THE 7 DEADLIEST WINDOWS SINS: DON'T BREAK YOUR PC!

IF YOU AVOID A FEW MISTAKES IN WINDOWS, YOUR SYSTEM CAN RUN SMOOTHLY AND EFFICIENTLY FOR A LONG TIME. WE SHOW YOU WHAT YOU SHOULD NOT DO IN WINDOWS.

BY THOMAS JOOS



Windows 10 and Windows 11 are secure operating systems that offer a wide range of options and features. That creates a wonderful sense of freedom, but it isn't free of pitfalls: There are some mistakes you can make as a user that can have serious consequences on your Windows PC.

Here are the seven deadliest Windows sins you want to avoid, for the good of your PC's health.

USING OPTIMIZER SOFTWARE OFTEN DOES MORE HARM THAN GOOD

If Windows doesn't run stably or reacts slowly, it is usually due to aspects where optimizer software like CCleaner (fave.co/3MaqoEL)

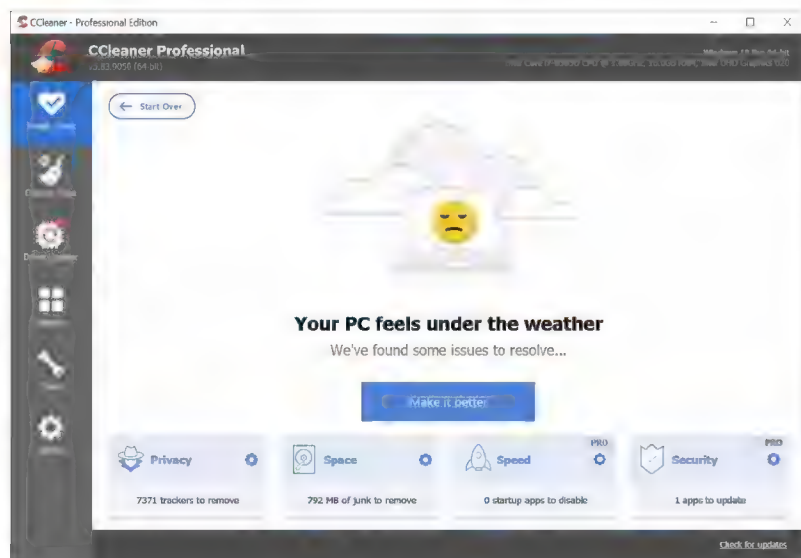
can't help. Many users install free or even paid programs that are supposed to increase performance, "clean up" the system, or perform other miracles—but in most cases, such tools bring little or no benefit.

Optimization tools often impair, deactivate, or adjust Windows functions that run worse than they did before after "optimization," however. There is also a risk that automatic optimization will change or delete important system files or registry entries, which itself can lead to instability or even an unbootable system.

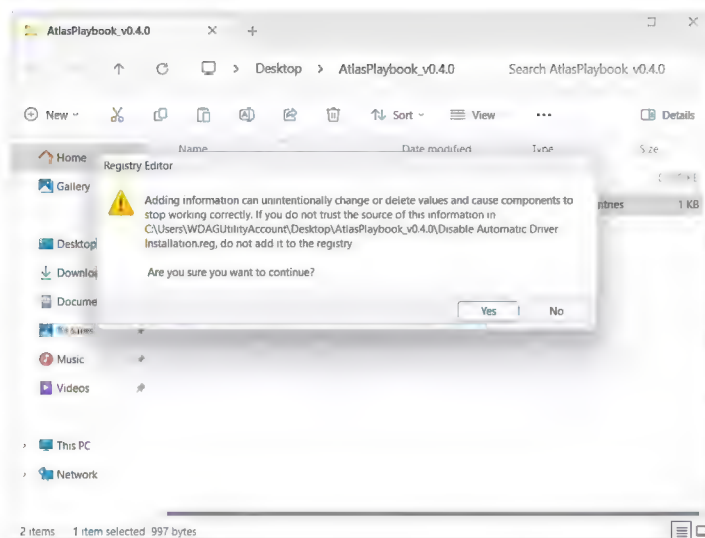
Many of these tools use aggressive methods to remove supposedly superfluous files, which can unexpectedly cause data loss. Another disadvantage is potential security vulnerabilities, as some tuning tools may contain unwanted or malicious software that jeopardizes the system.

Adding insult to potential injury, the promised performance increases often only offer marginal improvements that are barely noticeable in everyday use.

Bottom line? It's only worth using optimization software in very few cases, and in most of those cases you'll only need to run specific features of the software. Most people should avoid them all together.



If Windows doesn't run stably, it could be due to aspects where optimizer software such as CCleaner (pictured) can't help.



Tools like Atlas or other tools make sweeping changes in Windows that rarely make sense.

“SLIM DOWN” WINDOWS WITH SPECIAL TOOLS

Various tools promise to “slim down” Windows by deactivating system services and switching off components that are sometimes important. Examples include Tiny11, Atlas, and ReviOS. For most people, it doesn’t make sense to use such tools, and there are usually no positive effects when system services are switched off in Windows.

If Windows is not running stably or fast on the hardware in question, stopping services or components will have little or no effect. On the contrary! Windows usually runs more unstably or insecurely afterward.

Tools such as Tiny11, Atlas, or ReviOS remove system components and services that are sometimes required for certain applications or hardware, which can lead to

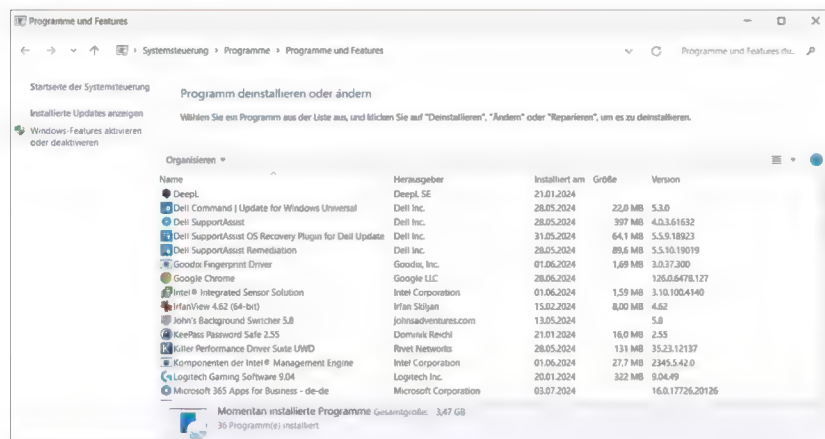
malfunctions or limited compatibility. The use of modified operating systems also means a loss of official support and regular updates from Microsoft, which increases security risks.

Furthermore, these tools harbor legal risks, as they sometimes violate Microsoft’s licensing conditions. The long-term stability and reliability of the system can also be impaired, as the tested and proven standard configurations have been significantly changed. Finally, the integration of new features or

updates in such customized operating systems is often problematic or even impossible, which limits the future viability of your system.

Exceptions are hyper-targeted tools such as ShutUp10++ (fave.co/46QOEpc), which (can) improve data protection. However, these tools can also trigger side effects on individual PCs, so that their use is only halfway sensible for experienced users, and definitely not for beginners.

Be careful with tools that supposedly speed up Windows, streamline it, or improve security. Instead, make sure you don’t install too many programs, use sufficient hardware, and don’t slow down the system unnecessarily. If Windows 10 or Windows 11 is not running ideally, additional tools rarely provide the solution.



You should not install too many programs at once.

INSTALLING TOO MANY PROGRAMS

Installing too many additional tools and programs is a common problem on Windows PCs. You generally don't use the programs often enough for a permanent installation to be necessary, and many tools nest in the autostart menu. As a result, programs that you rarely or never need also consume system resources and slow down your system.

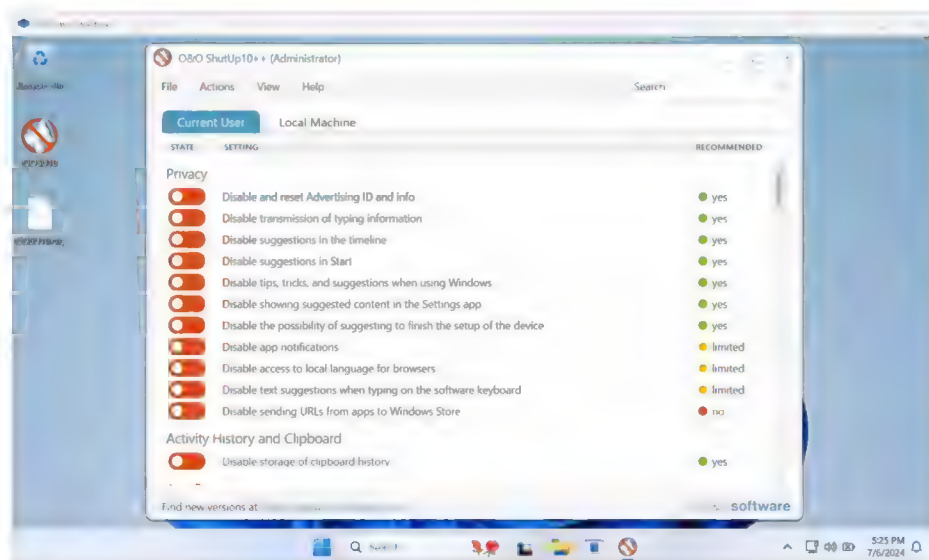
If you want to test programs, it's best to do so on a virtual computer, fave.co/3yLbrpK, (or in the Windows sandbox [fave.co/46OaART]

if you are using Windows 10/11 Pro [fave.co/3XaEFYD] or Enterprise).

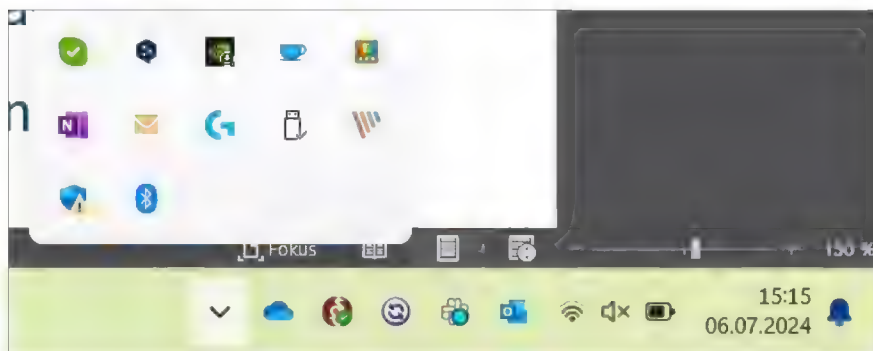
Programs that you no longer need should be uninstalled in Windows. This frees up disk space, often removes unnecessary files, and reduces the load on the registry. Please note,

however, that many programs leave remnants in Windows that are often difficult to remove, even after uninstallation.

You should therefore think carefully about which software you install. If you have installed tools that you no longer need, it is better to remove them before installing a new



With the Windows sandbox, you can test programs without having to install them on your production system.



Startup programs slow down Windows.

program. Too many installed programs are a long-term problem for the stability and speed of Windows.

Tools that you only want to test or only need once have no place on a productive Windows installation. You can install a virtual computer and test software on it. Check regularly whether too many programs are starting with Windows. This is because they slow down the operating system unnecessarily. You can also see this from the number of icons in the tray area of your taskbar next to the clock.

Tools such as Autoruns from Microsoft ([fave.co/3X9hnSV](https://www.sysinternals.com/3X9hnSV)) help to recognize autostart programs. The tool is portable and also helps to deactivate autostart programs

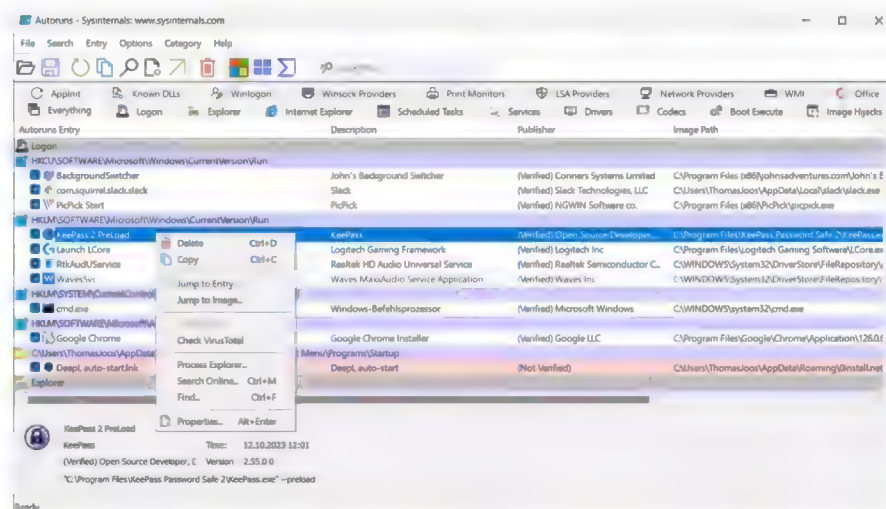
before removing them. If a tool is still needed, the autostart position can be reactivated.

Autoruns is a very valuable tool when it comes to recognizing system brakes. In addition to autostart

programs, Autoruns also recognizes unwanted programs that start with Windows.

DISABLING SECURITY SETTINGS, MALWARE PROTECTION, FIREWALL

Windows 11 in particular has numerous settings that increase security. Various options are available here, particularly in the Windows Security Center. Deactivating these options can significantly impair the security of



Autoruns identifies startup programs in Windows and can disable them.

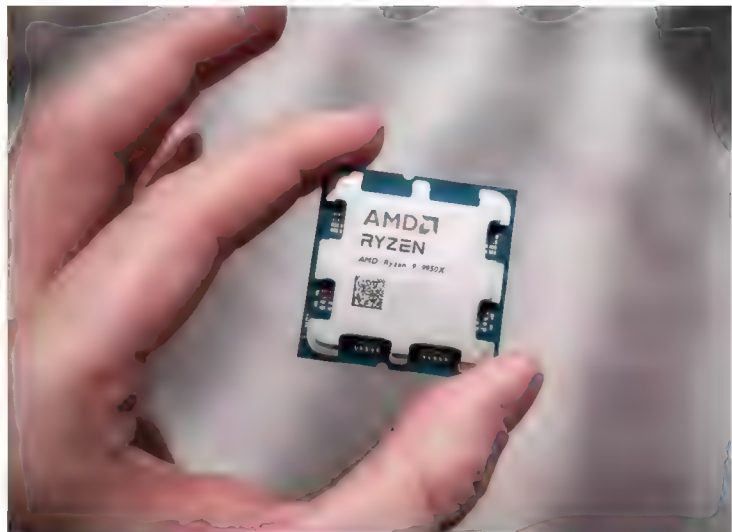
Windows. You should therefore generally not deactivate any options that you are not familiar with, especially not in the Windows Security Center. Of course, you should also deactivate the Windows Firewall and certainly not the malware protection.

Also make sure that you do not deactivate any important system components for Windows security. If you don't want to use Microsoft Defender, you can use another compatible antivirus program (fave.co/3CnDHuk), but you should never run Windows without a compatible malware scanner. Antivirus doesn't have a noticeable impact on any modern systems except when you're actively running a scan.

USING SOFTWARE FROM UNKNOWN SOURCES

If you install programs from sources that you do not know, there is a *strong* risk that it contains malware. There is also a risk of other cyberattacks. You should be particularly careful when sharing personal data, because that information is used for phishing attacks.

Therefore, avoid installing software from unknown sources and do not install any unknown programs. If you are not sure whether a source is legit, search the internet for experiences with the site. This will often



Without sufficient cooling, CPU overclocking can lead to problems that can destroy your hardware.

give you an indication of whether the site is reputable or not.

Of course, you should also not install any unknown tools, even if they come from known software sources. Only use programs that you know or that you have read about on the Internet from trustworthy sources. In addition, only ever download software from the original manufacturer's website if possible. Do not use unknown portals, such as bulk download sites or torrents, because the installation software often contains malware.

CPU OVERCLOCKING WITHOUT SUFFICIENT COOLING

Many software tools exist solely to overclock your CPU speed (fave.co/4dRwCFF) to (theoretically) improve performance.

Manufacturer tools and drivers also often offer this option. But this should be reserved for experienced users, as increasing the CPU clock also increases the power consumption and temperature of the CPU and the PC.

Without sufficient cooling, this can quickly lead to problems that can even destroy the hardware. The vast majority of people don't need to overclock their systems anyway, and many manufacturers void your warranty if it is discovered that the CPU has been overclocked. Finally, the actual increase in performance through overclocking is often less than expected and rarely justifies the risks and disadvantages mentioned.

10 QUICK TIPS: THERE'S A LOT MORE YOU SHOULDN'T DO IN WINDOWS

For the final deadly Windows sin, we've compiled a quick list of other actions that you should avoid if possible.

Delete or change system files:

Modifying or deleting files in the Windows directory can destabilize the operating system or render it inoperable.

Deactivate automatic updates:

Disabling Windows updates can cause important security updates to be missed, making the system susceptible to security vulnerabilities.

Change registry entries manually:

Making changes to the Windows registry without having in-depth knowledge can

cause serious system problems that are difficult to fix.

Give default user accounts

administrator rights: Elevating the privileges of a standard account to administrator rights can jeopardize system security and increase the likelihood of unintended or malicious changes.

Defragment hard disks regularly on

SSDs: Defragmenting SSDs can shorten their lifespan, as they are organized differently than HDDs and do not experience any performance gain through defragmentation.

Using unauthorized hardware or

drivers: Installing unsupported hardware or drivers can lead to incompatibilities and system instability.

Assigning access rights too

generously: Assigning extensive access rights to too many users or programs increases the risk of data misuse and security breaches.

Disable system restore:

Without System Restore, it is more difficult to restore the system to a previous state after an error or problem.

Lack of backups:

Neglecting regular backups (fave.co/3nINb3Z) can lead to data loss if the system crashes or if it becomes corrupted.

Installing unchecked add-ons and

extensions: Installing browser add-ons or other extensions from insecure sources can open security holes and jeopardize the system. 🔌

10

SIMPLE SECURITY ACTIONS THAT KEEP YOU MUCH SAFER ONLINE

THESE EVERYDAY ONLINE SECURITY
TIPS ARE SIMPLE, FAST, EASY, AND FREE.

BY CHRIS HOFFMAN





Online safety doesn't have to be complicated. With some simple steps, you can easily protect your PC from malware and safeguard your personal data with very little extra effort.

The best part? None of these tips costs money. In fact, most important security tools you need are completely free (fave.co/3AyaJN9). You can keep yourself and your PC safe online without spending a single dime.

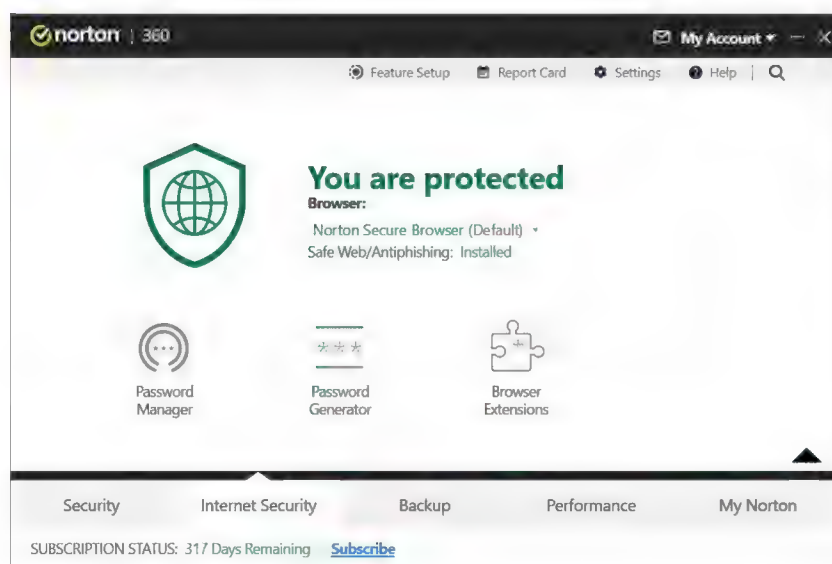
1. USE AN ANTIVIRUS

Antivirus software is a must-have for any PC. Thankfully, you don't have to go out of your way to get one anymore because all Windows 11 and Windows 10 PCs come with Windows Security and Microsoft Defender (fave.co/3tXSvPP), giving you access to a minimal yet capable antivirus.

It automatically scans your system in the background and checks the files you download and the applications you run, spotting malware before it can take hold. You can go further and configure Microsoft Defender for extra security (fave.co/462uHLJ) if you want.

Or you could opt for a third-party antivirus, many of which come with extra security features (fave.co/4d4fagF). If you decide to take this route, know that we currently recommend Norton 360 Deluxe (fave.co/30Bk59o), but any antivirus will do if all you care about is basic protection.

Just be sure to leave your antivirus's real-time protection feature enabled. Don't turn off real-time scanning because mistakes can happen to anyone—and when they do, you want your antivirus to be active.



Norton 360 Deluxe is our favorite antivirus software.

2. USE A PASSWORD MANAGER

Once you start using a password manager, you'll never go back—it's that life-changingly convenient. So, if you aren't using one yet, we *highly* recommend using a password manager. (A free one, even!)

The unfortunate truth is that many companies,

no matter how big they are or how reputable they seem, end up facing data breaches and leaks that release their password databases to the public.

That's why the biggest risk you can take online is reusing the same password for multiple accounts. If your password gets leaked in a data breach, hackers can use your email and password combination to break into your other accounts that use the same password.

The solution? Use strong passwords that are unique every single time.

The problem? Remembering so many passwords is almost impossible—and that's why you need to be using a password manager.

A password manager remembers all of your passwords and associates them with their respective sites, apps, accounts, and so forth. All you need to do is remember the master password; the password manager will fill in the appropriate password whenever you need to log in.

3. KEEP YOUR SOFTWARE UP TO DATE

Modern operating systems and all the applications on your system receive regular security updates that fix exploits and vulnerabilities. If you skip these important patches, you're opening yourself up to risks.



Most modern applications regularly check for and automatically install such updates.

The good news is that most modern applications—whether it's Windows, Microsoft Office, Google Chrome, or something else—regularly check for and automatically install such updates.

If you've disabled automatic updates, you should reconsider. There may be a niche reason to do so, but most of the time you're just putting yourself in danger.

And yes, sooner is better than later. If your operating system or web browser says it needs to restart to install updates, do it. Sure, it's inconvenient to restart your Windows PC or web browser in the middle of something, but it might protect you from an attack.

4. STOP USING UNSUPPORTED OPERATING SYSTEMS AND APPLICATIONS

It's one thing for operating systems and applications to get automatic updates—it's

another thing when those updates are discontinued. No software lasts forever. Eventually, developers and companies end long-term support and stop issuing security updates for older hardware and software. At that point, the hardware and software should be treated as unsafe and you should stop using it as soon as you can.

What happens if you keep using it? Older software and unsupported devices gradually grow increasingly more vulnerable to attack, and it'll only be a matter of time before you get hit with something.

For example, Windows 7 is no longer supported (fave.co/3o5MCvW), and using it puts you at risk because newly discovered security holes aren't being patched. The same is true for individual applications—like Office 2016 and earlier versions of Microsoft Office, which no longer receive security updates.

While an older version of Office might work well for your needs, it could open you up to an attack. For example, you might download a malicious Word document that exploits an Office vulnerability to hack you.

That's one reason why Microsoft Office 365 is a good deal (fave.co/35ogFZm): You'll always have access to the latest versions of Office on all your devices.

5. BE MINDFUL WHEN BROWSING THE WEB

How you browse the web is important. In an ideal world, you shouldn't have to worry

about the sites you visit and whether something could go wrong—but the world is far from ideal.

Untrustworthy websites can attack your browser through unpatched security flaws. More commonly, sketchy websites may try to download malware onto your PC, trick you with misleading advertisements (fave.co/3ySR8GP), or get your personal information with phishing scams.

Take care when browsing the web and be mindful. Think twice before downloading software, avoid dodgy sites that make promises that seem too good to be true, and don't enter personal information on any website that you haven't vetted and trust 100 percent.

6. ONLY DOWNLOAD FILES AND SOFTWARE FROM TRUSTWORTHY SITES AND SOURCES

Any time you download software, you have to be very careful. Even something as innocuous as a PDF or Word document can potentially wreak havoc on your PC if it exploits an unpatched flaw in your PDF reader or Microsoft Word.

Any file you download off the internet can do nasty things to your PC, and only an antivirus that recognizes it will protect you. So you should only download, install, and run software that you completely trust—and only if you get it from a source you trust.



Windows SmartScreen warnings appear when you attempt to run software that it doesn't recognize.

Also, stop ignoring Windows SmartScreen! On Windows, SmartScreen warnings pop up when you try to run software that few people have downloaded and run before. You can tell Windows to run the application anyway, but you should always pause and consider whether you truly trust the application. If you don't, then you shouldn't run it. When in doubt, stick with known-as-trustworthy applications.

7. LEARN TO IDENTIFY PHISHING SCAMS

Phishing scams have grown into a huge problem over the last several years, and you're at risk whether you're using a Windows PC, a Chromebook, or a smartphone.

Long story short: A phishing scam is one where someone tries to bait you into giving

away sensitive information or installing malware. This is usually done by tricking you into clicking a deceptive link.

Phishing scams are tricky because they're usually disguised as coming from a trusted source: a reputable company like Microsoft, a widely used service like USPS, or even a friend or

family member. That's why it's so important to learn how to identify phishing emails and text messages (fave.co/3Qxl5Bc).

A password manager can help here, too. Let's say you click a phishing link and end up on a fake site pretending to be your bank. If you were on your *real* bank's website, your password manager would know and automatically fill in your login details. But since it's an imposter site, your password manager won't fill in—a clue that something is amiss.

8. DON'T CLICK UNSOLICITED LINKS

Every link should be treated as questionable, whether that's on a website, on social media, in an email, or even in a text message. If you never click on unsolicited links, you can

drastically reduce your risk of installing malware.

For example, let's say you get a text message about a package delivery failure and you need to click this link and provide personal information to make sure you get it. You don't know whether it's a scam or not—but you aren't expecting a delivery, so you treat it as questionable. In most cases, you just successfully avoided being scammed.

The same goes for when you get a link that purports to come from Amazon, PayPal, or your credit card company. It may have an alarming angle to it, such as claiming your account has been banned. This is meant to induce panic and cause you to lower your guard. But if you have a general policy of not clicking unsolicited links, you'll be okay.

When in doubt, avoid unsolicited links and go straight to the source. Got an alert email that claims to be from your bank? Don't click it. Instead, manually navigate to the bank in your web browser. Got an urgent alert about a package from FedEx? Don't click it. Go straight to the FedEx website and confirm if it's true.



For passive protection, it's better to create a secondary Windows user account with Standard user permissions.

9. USE A STANDARD WINDOWS USER ACCOUNT

When you're on Windows, we recommend that you use a Standard account type rather than an Administrator account type for day-to-day activity.

Yes, Administrator accounts are more convenient because they can install software at the system level with fewer hurdles. But being logged into an Administrator account also makes it easier for malware to take hold.

For passive protection, it's better to create a secondary Windows user account with Standard user permissions. That way, if some nefarious piece of malware does try to infect your system, it will have a harder time doing so.

For best results, only use an Administrator account to set up your PC and install software, then switch to a secondary Standard account for your day-to-day computer usage. Microsoft has a detailed help website with information about creating new user accounts (fave.co/3YL11m3).

The good news is that Microsoft is making some changes to Windows that may make this unnecessary soon (fave.co/4dKYivj).

10. SET UP TWO-FACTOR AUTHENTICATION FOR YOUR ACCOUNTS

Two-factor authentication is nonnegotiable these days. With this extra layer of protection for an account, even if someone knows your account's password, they still won't be able to sign in.



Two-factor authentication will help keep you safe online.

Why? Because the intruder will *also* need a specific two-factor authentication code: perhaps a code sent to your phone, a code generated by an app, or even a physical security key.

I recommend setting up two-factor authentication (fave.co/41SY7rQ) with all accounts that support it, particularly bank accounts and email inboxes. It may be a tad more inconvenient to sign in—you'll have to provide a code in addition to your usual password—but it's an important way to stay safe online.

OUTDATED PRACTICES THAT DON'T REALLY HELP

I think you'll agree with me that the above tips and tactics aren't very difficult at all. Some are one-and-done (like using a Standard Windows account), some are repeated (like

keeping software updated), and some are passive (like never clicking unsolicited links), but they're all simple.

Now that you know what to do, you should also check out my other advice on what you *shouldn't* do. In fact, there are several outdated security practices (fave.co/3UDTnoB) that may have been useful in the past but are no longer helpful. It's better to stop doing them now. 

Think that's scary?

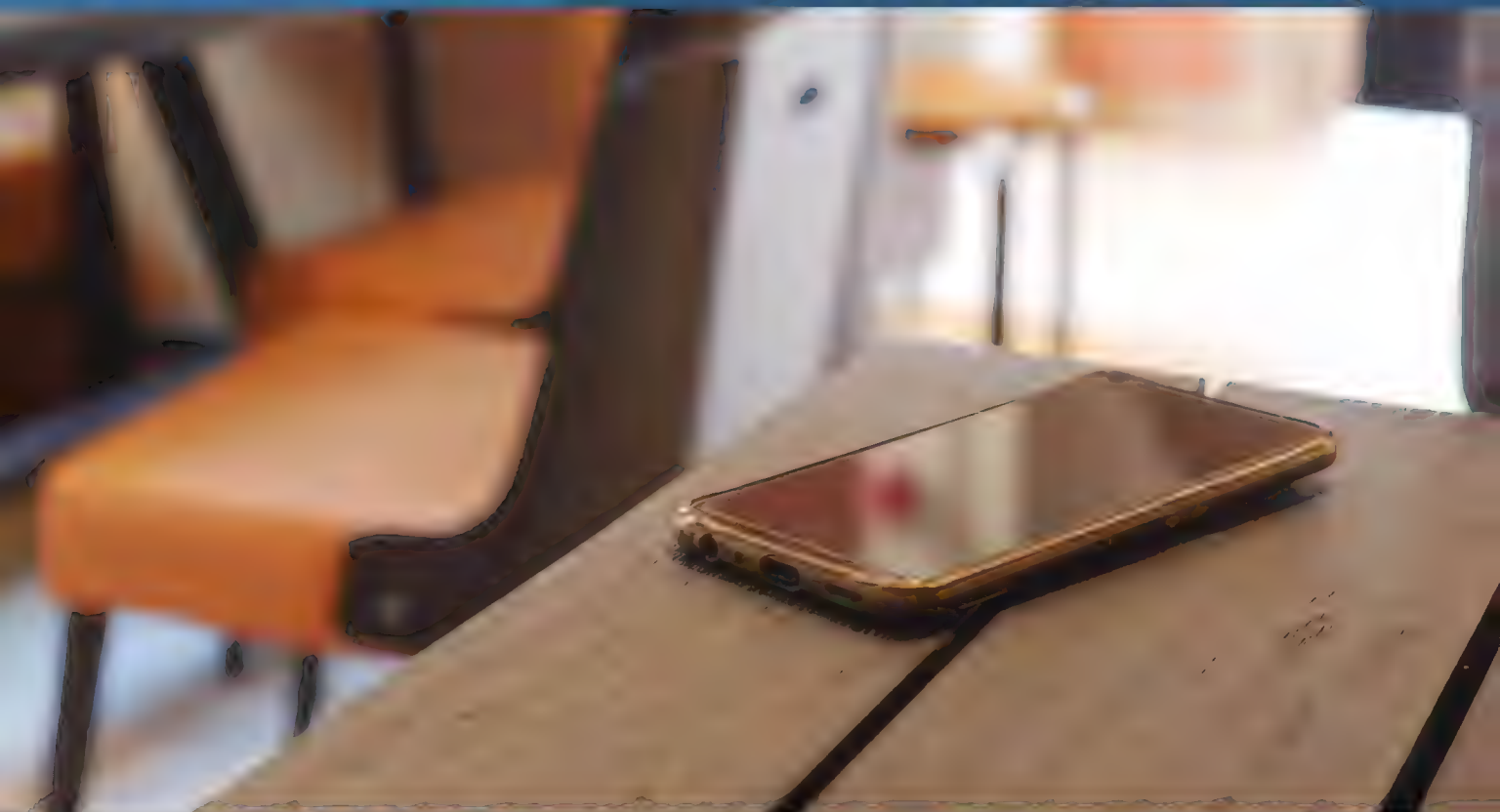
Sharks can be terrifying.
But what's really scary,
and even deadly,
is distracted driving.

**Eyes forward.
Don't drive distracted.**



NHTSA





How to find lost gadgets (and avoid losing them)

Keep track of your phone, laptop, and other devices with these tips. **BY JARED NEWMAN**

This story was inspired by some unsolicited tech advice from the TSA. Coming home from a recent vacation, my wife left her phone at airport security. After a frantic race back from the gate, we were able to get the phone back without issue, along with a tip from the agent who was holding onto it: *Put an emergency contact on the lock screen, so whoever finds your phone knows who to call.*

There are a bunch of ways to do this, which I'll explain shortly. But the incident also

brought to mind a broader point about how to deal with lost or stolen devices, both before and after the fact. If you have any trips coming up, it's worth taking a few minutes to know your options.

iPHONE USERS: SET UP FAMILY SHARING

If you're traveling with a partner and both of you have iPhones, setting up Family Sharing lets you use Apple's Find My app to play a sound, enable Lost Mode, or remotely trigger

a factory reset on the other person's devices. (Family Sharing also has other benefits, like being able to share some subscriptions; fave.co/3YRbLOu.)

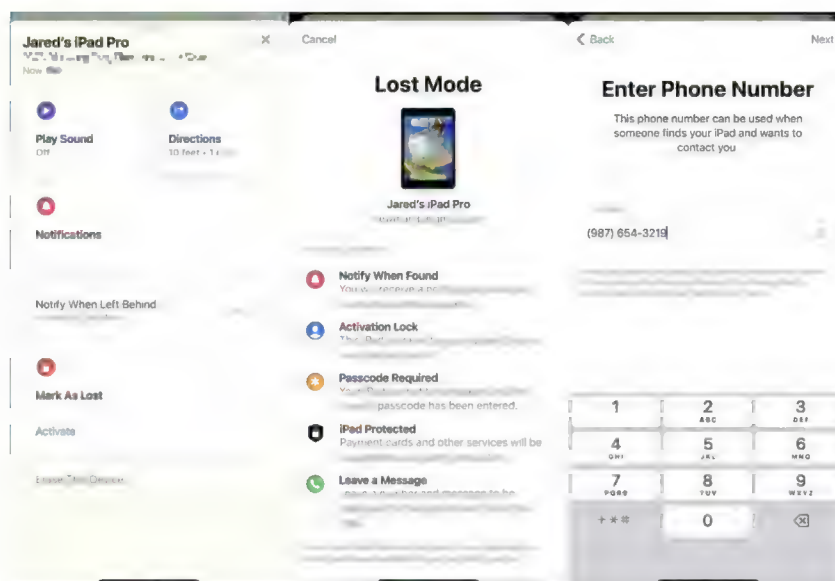
- Set it up under Settings > Your Name > Family Sharing, or view Apple's documentation (fave.co/3yzJ9P3) for more details.

- Family Sharing alone does not share your device's location with family members. If you want to do that, head to Settings > Your Name > Find My, then enable Share My Location and choose the family member you want to share with.

GET FAMILIAR WITH FIND MY

Apple, Google, and Microsoft all offer Find My utilities to help locate and remotely lock a lost device. Now's a good time to make sure you're using them.

Apple: The Find My app should be installed by default, but if not, you can grab it from the App Store (fave.co/3yKQRpu). You can use the app to find iPhones, iPads, Macs, AirPods, Apple Watches, AirTags, and other devices connected to Apple's Find My network. (There's also a web version at icloud.



Activating Lost Mode for an iPad in Apple's Find My app.

com/find, but you'll need access to your phone or an other Apple device to get past the two-factor authentication prompt.)

Google: Install the Find My Device app (fave.co/4dsNL8y) from the Google Play Store, or use the web version (fave.co/3SVqtjL). While you can't view your partner's devices this way, the app has a handy Guest Mode that anyone can temporarily log into. Use it to find Android devices, WearOS watches, earbuds with Fast Pair support (fave.co/3McUQhS), and other devices that support Google's Find My Device network. Unfortunately, the app can't track a lost Chromebook.

Microsoft: On your PC, head to Settings > Update & Security (in Windows 10) or Privacy & Security (in Windows 11), then select Find My Device and make sure it's turned on.

You can then use Microsoft's Find My Device website (fave.co/3WJqU1y) to locate or lock down your laptop.

ENABLE LOST MODE

All three of the Find My tools above allow you to mark your device as lost. This prevents the device from being used until you sign back in. You can also set a custom message with contact information, so whoever finds the device can get it back to you. This feature is called Lost mode for Apple devices, Secure Device for Android, and Lock for Windows PCs.

ADD EMERGENCY INFO

Find My apps may be useful once you've realized your phone has gone missing, but you can also add emergency contact info that anyone can look up from your lock screen.

On iOS: Head to Settings > Emergency SOS > Set up Emergency Contacts in Health. Select Edit and fill out the emergency contact field.

On Android: It varies by phone, but try looking under Settings > Safety & Emergency or About Phone > Emergency Information. On Samsung phones, you can also tap your name at the top of the Contacts app to fill out emergency contact info.

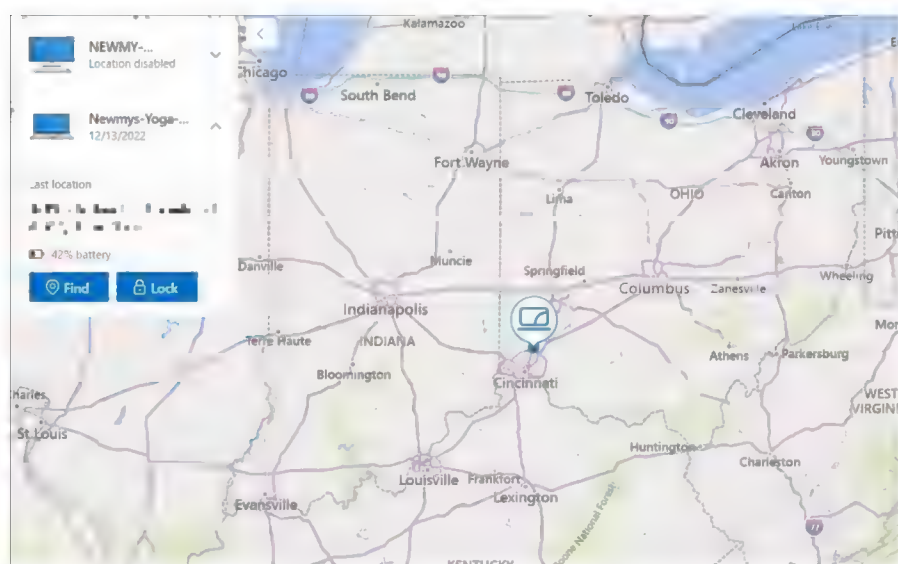
Once set up, whoever finds your phone can tap Emergency from the lock screen to find your alternative contact info.

CONSIDER A LOCK SCREEN CONTACT

Unfortunately, emergency contact info is a bit buried on both iOS and Android, so someone who finds your phone may not know where to find it. Besides, you might

prefer to list your own email address instead of someone else's phone number as a recovery option, especially if you're traveling abroad. For those reasons, consider putting an alternative contact directly on the lock screen itself:

On iOS: Set up a lock screen widget



Microsoft's Find My tool with a Windows laptop located on a map.

with customizable text, such as Lock Screen 16 (fave.co/3STQkbK) or Any Text. Here's a helpful step-by-step guide (fave.co/3X7qwvb).

On Android: It varies by phone, but if you search for Lock Screen in Settings, you should find an option to add whatever text you like—no third-party apps needed.

GONE FOR GOOD?

If you can't get your device back and are worried about unauthorized access, you can use another device to remotely erase the lost one and sign out of your accounts. This is especially important on tablets or computers where you might not have set up a lock screen.

- Google's and Apple's Find My apps offer an Erase function to wipe your devices from afar. Note that Apple says not to do this if

you have an AppleCare+ plan with theft and loss coverage, as you'll need to file a claim and get it approved before erasing the phone (fave.co/46RTGSa).


- This Google web page (fave.co/4dypY0L) lets you remotely log out of your account on any device, including Chromebooks.

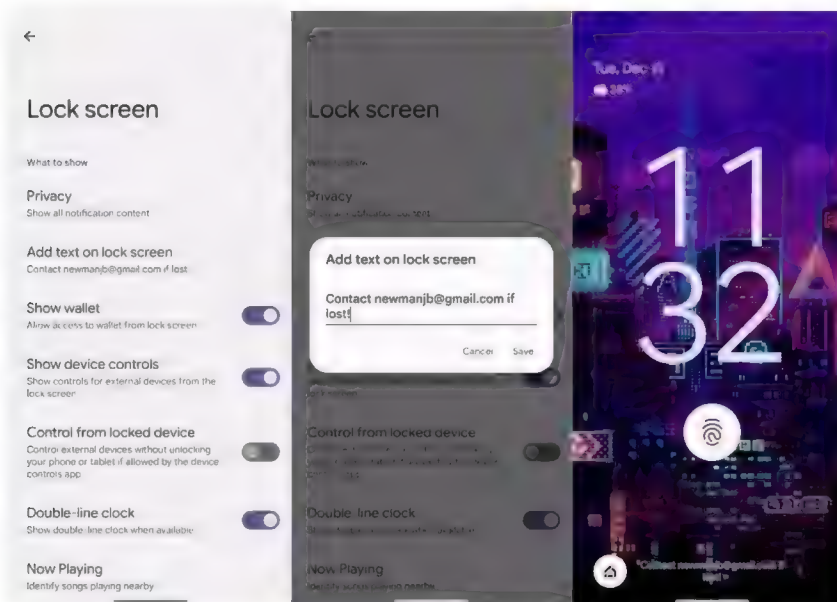
- The AppleID website (fave.co/3Arx66J) lets you log out of your Apple account on any device, including non-Apple devices (such as Roku players where you signed into the Apple TV app).

Lastly, consider reporting the device's IMEI number to the police, which may be necessary if you have theft and loss coverage. You can look up that information on the AppleID website (fave.co/3Arx66J), or by clicking the "i" next to your phone on

Google's Find My Device page (fave.co/3yG4PsN).

BACK UP YOUR DATA

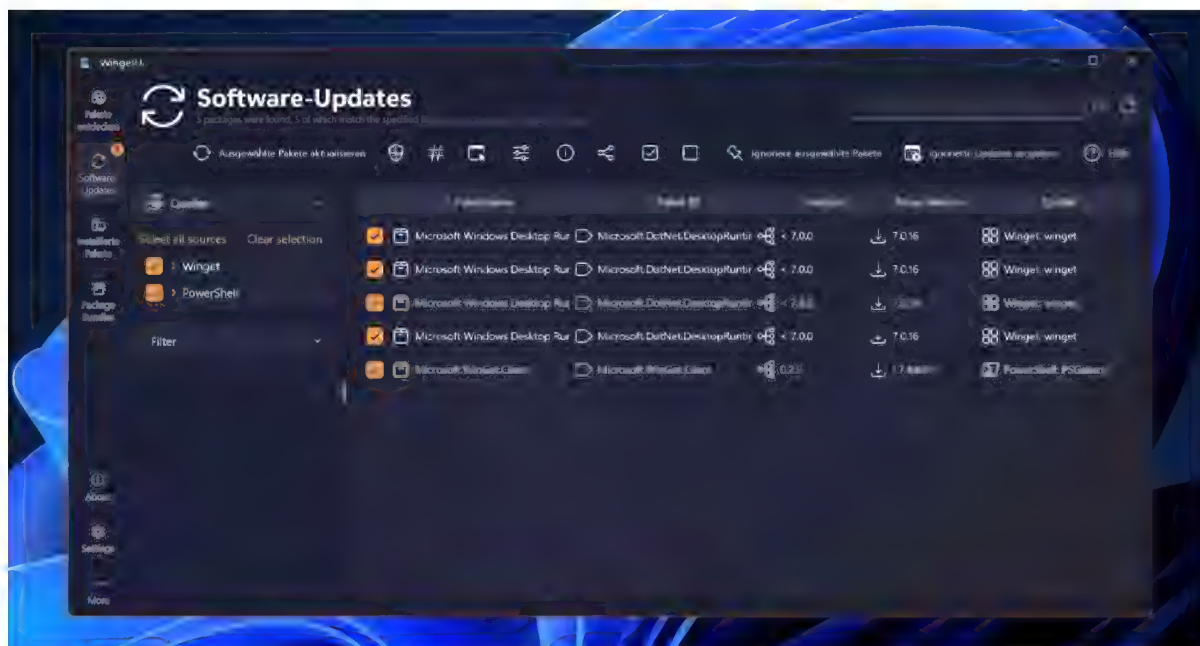
Does your phone have any data that you'd miss if it disappeared forever? Consider this a friendly reminder to have a backup solution in place, at the very least for your photos. This, of course, is an article unto itself (fave.co/3yKRcbK). 



Screenshots of adding lock screen text on a Pixel phone.

How to update all your Windows PC's apps with a single click

It can be tedious to keep your software up to date under Windows. It's a lot easier with this free third-party package manager tool. **BY PETER STELZEL-MORAWIETZ**



Both Windows 10 and Windows 11 have a built-in command line tool called **WinGet** that provides a way for you to find, install, upgrade, and remove software and updates.

This tool is broadly useful in several ways, but one nifty use case stands out: WinGet can update all installed programs in one go, quickly bringing all the software on your system up to date.

But what if you don't like using the Command Prompt? Or you just aren't familiar with command line actions?

Well, you can just use UniGetUI, formerly known as WinGetUI, instead (fave.co/3JniGpB). It provides an intuitive graphical user interface for performing actions in WinGet (and other Windows package managers).

After downloading, installing, and launching UniGetUI, you'll see options for Discover Packages, Software Updates, and Installed Packages in the left sidebar. Let's run through each of these selections and how they work.

DISCOVER PACKAGES WITH UNIGETUI

In the Discover Packages section of UniGetUI, you can use either search bar—the giant one in the middle or the smaller one at the top right—to search for programs you want to install. You can install programs by right-clicking and selecting Install—but before you do, look at the Source column on the right side. Stick with items labeled WinGet: winget. (The items labeled WinGet: msstore and Chocolatey are also okay, but those programs are the versions made available through the Microsoft Store and the alternative Chocolatey package manager for Windows, respectively.)

If you want to install several programs at once, select the checkboxes at the front of each list item, then click the “Install selected packages” button along the top toolbar. The

installation will run without the usual app installation confirmations.

SOFTWARE UPDATES WITH UNIGETUI

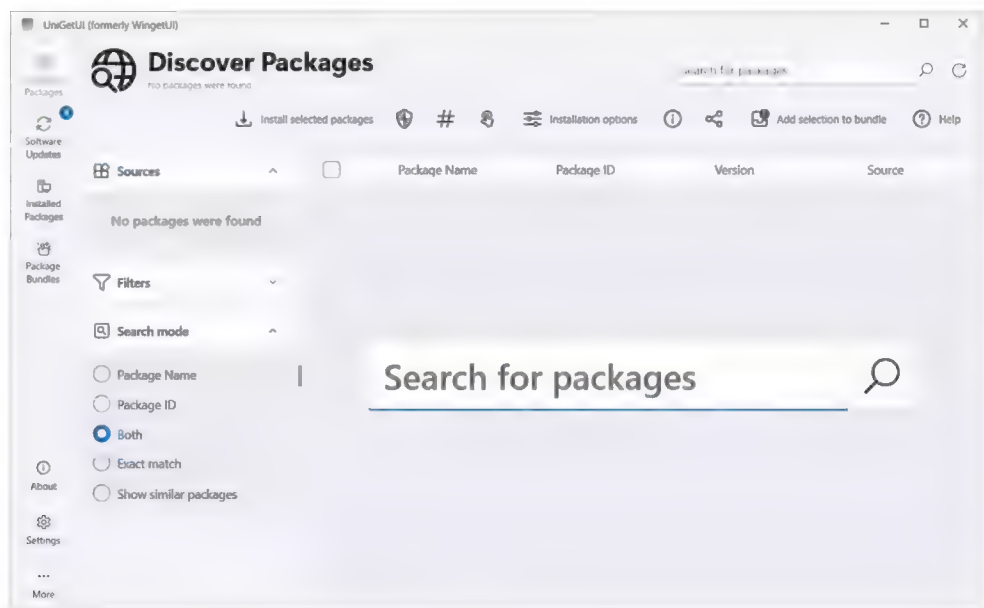
In the Software Updates section of UniGetUI, you’ll see a list of all the installed programs on your system that have updates available. This is where you can quickly update everything at once.

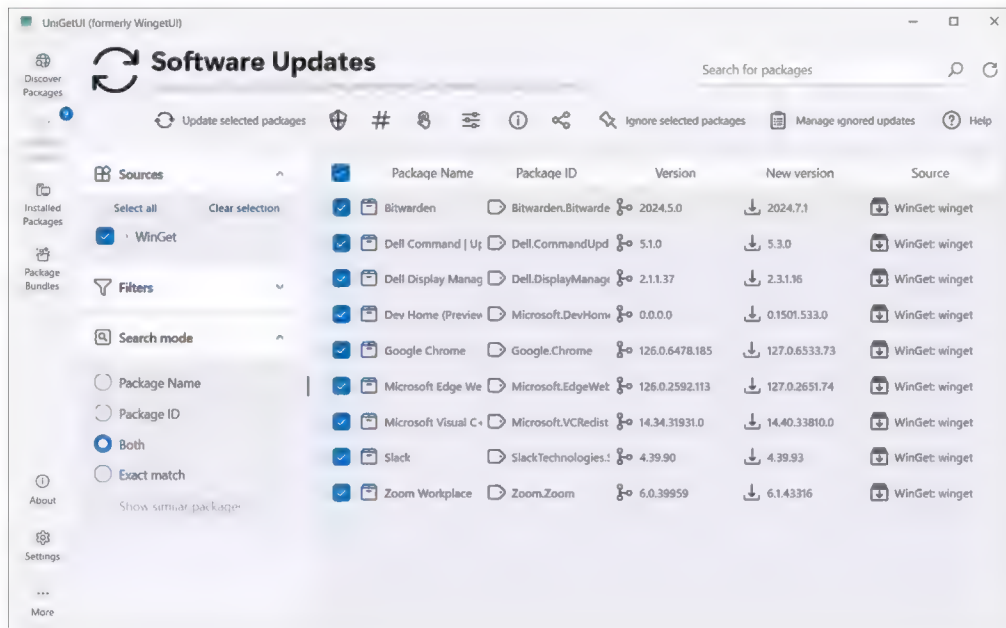
Note that all the list items are selected by default here. You should only skip updates for software if you have a very good reason (like if a specific update is known to have a critical bug or vulnerability).

INSTALLED PACKAGES IN UNIGETUI

The Installed Packages section of UniGetUI shows just about all the software that’s

You can search for programs you want to install in the Discover Packages section.




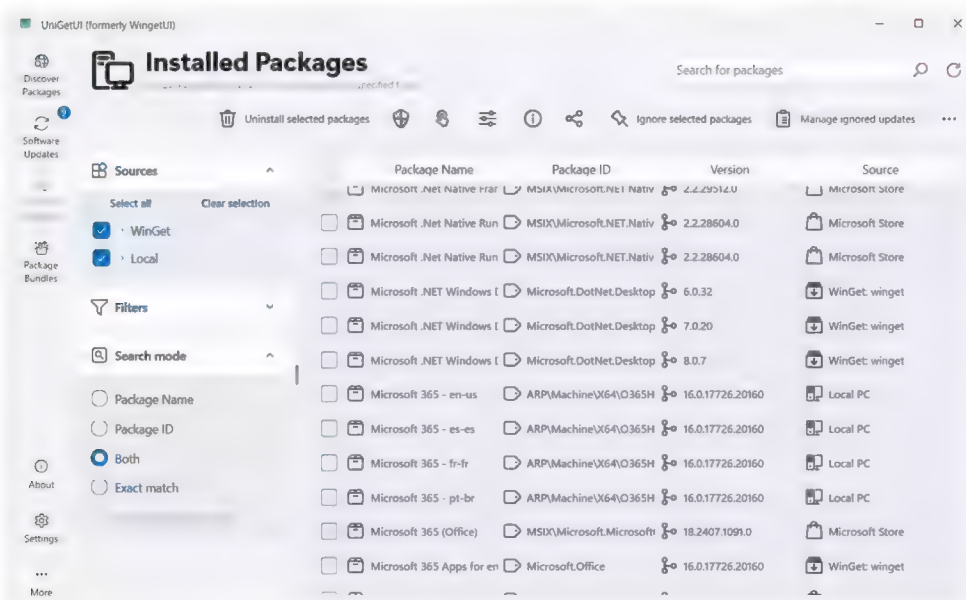


The Software Updates section is where you can update everything at once.

installed on your system, including many apps that come pre-installed with your version of Windows.

Depending on the software, UniGetUI offers various options for uninstalling and

reinstalling. (Recently, even the Microsoft Edge browser can be removed this way.) These options appear in the context menu when you right-click on a particular item. 



The Installed Packages section shows details of the software that's installed on your system.



Unlock the hidden menu on your TV with this secret button combo

Here's a life hack for your smart TV: Use this button combo to activate a secret menu that can do some cool stuff. **BY STEFFEN ZELFELDER**

On many modern televisions, there's a secret menu that's accessible using a cryptic button combination. The so-called service menu grants access to hidden device settings that let you customize your TV as if you were a system technician. It goes beyond mere picture and sound, with diagnostic tools and picture calibration tools and special developer options.

WHAT CAN YOU DO WITH THE SERVICE MENU?

The hidden service menus in TVs may look slightly different from manufacturer to manufacturer, but they usually offer the same sorts of adjustments and settings:

Update: Update the device's firmware.

Audio settings: Manipulate the time offset between the picture and sound track (audio latency) or adjust the equalizer.

Calibration: Make precise and wide-ranging adjustments to screen settings, such as color temperature and white balance.

Display settings: Change sharpness and screen resolution.

Diagnostic tools: Run diagnostic programs or perform self-tests to detect faults with the speakers, connections, or display.

Tuner settings: Make in-depth system settings on the TV tuner by manipulating signal amplification, adjusting search parameters, or making tweaks to frequency bands.

Network settings: Set LAN and Wi-Fi connections, change the network configuration, or perform network diagnostics.

Energy options: Tweak energy consumption settings during operation and standby mode behavior.

Device settings: Reset to factory settings or lock certain features.

Developer options: These settings are usually of little importance to end users. Developers may find them useful to test different features for compatibility or performance.

A WORD OF WARNING

The service menu isn't without risk. If you mess something up, you

could theoretically cause permanent damage or even brick the device altogether, rendering it unusable.

In other words, you should only change settings in the service menu that you understand. Don't tweak it willy-nilly. In fact, before you do anything, you should record all of the default settings so you can revert to normal operation in case something goes wrong.

HOW TO ACCESS YOUR TV'S SERVICE MENU

Each TV manufacturer hides its service menu behind its unique access code. Not all models from the same brand may have service menus that are accessible in the same way, either.

Sometimes you have to switch off the TV beforehand. Other times you have to hammer



Example LG TV: 48-inch display, 4K resolution, 120Hz refresh rate, and Nvidia G-Sync as well as AMD FreeSync. This LG TV is really good (and also available in sizes up to 83 inches).



Example Panasonic TV: A 32-inch display, 1080p resolution, with HDR. This Panasonic TV offers a lot for its small price tag.

a certain button sequence into the remote control. Or maybe you just have to hold several buttons at once. Depending on your TV, the procedure will differ.

We've compiled the most common service menu access procedures for the

LG TVs

- Switch on the TV.
- Press the Menu or Settings button on your remote control.
- Press the following buttons in quick succession: 1-1-0-5. On some models, the combination might be 1-1-1-1.

- Confirm the entry (OK or Enter).

- If this is unsuccessful, you can also try a simultaneous hold of these two buttons: On/Off and Enter/OK.

- The service menu should now open.



Example Philips TV: This one delivers a beautiful picture with its 65-inch display, 4K resolution, and 120Hz refresh rate.

major TV brands. For the best results, use the original manufacturer's remote control that came with your television.

Note: If you're unable to access your TV's service menu, you can contact the manufacturer's support service and ask for the appropriate button combination. Make sure that you state what your TV model is.

Panasonic TVs

- Switch on the TV.



Example Samsung TV: This 4K QLED smart TV is available in 55, 65, 75, or 85 inches. It has a 120Hz refresh rate and can reproduce moving sounds atmospherically via Object Tracking Sound.

- Press and hold the Volume Down button on the TV.
- Tap the combination 0-0-0 quickly on the remote control.
- The service menu should now open.


Philips TVs

- Switch off the TV.
- Press and hold the Volume Down button on the TV and press the On/Off button on the remote control.
- The TV should switch on with the service menu.

Samsung TVs

- Switch off the TV.
- Press the Info, Menu, Sound Off, and On/Off buttons on the remote control in quick succession.
- The TV should switch on with the service menu.

Sony TVs

- Switch on the TV.
- Press the following buttons on the remote control in quick succession: Display, 5, Volume Up, and On/Off.
- The TV should switch off, then back on with the service menu. 



Example Sony TV: This is an inexpensive smart TV with good noise suppression. It has a 720p resolution, 60Hz refresh rate, and voice control.

5 ways to get Alexa to shut up

Is Alexa driving you nuts with unnecessary weather alerts, ultra-detailed delivery updates, and random “by the way” digressions? Help is here. **BY BEN PATTERSON**



Alexa sometimes says “By the way” after responding to a command, followed by a random tidbit or suggestion you never asked for. Sound familiar?

To be fair, Alexa is just trying to be helpful with these asides. Still, Amazon’s chatty voice assistant tends to butt in when it’s not wanted, making unnecessary announcements or overstaying its welcome with digressions.

Luckily, there are plenty of ways to make Alexa pipe down. In some cases, all it takes is

tapping a few toggles in the Alexa app. In others, a little hacking is involved.

Either way, we’ll guide you through the process—and in return, you’ll get a little peace and quiet.

TURN OFF WEATHER NOTIFICATIONS

It’s always a good idea to keep abreast of dangerous weather conditions, particularly when it comes to heatwaves, flooding, tornadoes, and hurricanes.

But rip tides and wind advisories? That's a little much—and besides, Alexa's warnings might be duplicating those you're already getting from your phone or another app.

Here's how to turn Alexa's weather notifications off, or adjust how they're delivered to you:

1. Open the Alexa app, then tap More, Settings, Notifications, then scroll all the way down to Weather.

2. Tap Severe Weather Alert, then tweak the options. You can choose whether Alexa tells you about severe weather alerts repeatedly or just once, as well as whether you also want mobile push notifications.

3. Finally, you can choose a delivery method: either out-loud Alexa announcements, or standard notifications on your Alexa devices.

TURN OFF AMAZON SHOPPING NOTIFICATIONS

If you're worried about porch pirates, you may well want to know the moment an Amazon delivery lands on your doorstep.

That said, you might not want to hear every last detail about your incoming Amazon orders, such as when an Amazon package is out for delivery, whether your return made it back to the warehouse, or the status of a given "subscribe and save" item.

If you want to keep a lid on Alexa's announcements about your Amazon

shopping orders, here's what you can do to make that happen.

1. Open the Alexa app, then tap More, Settings, Notifications, and finally Amazon Shopping.

2. Check out the various options and disable them as needed. For example, you can keep Alexa from announcing updates on items you've ordered or returned, or silence the "out for delivery" and "delivered" notifications.

3. You can also put the kibosh on updates about your "Subscribe & Save" orders, or cease deal and reorder recommendations.

TURN OFF "ALWAYS FOLLOW UP" MODE FOR REMINDERS

Alexa can become quite the nag when it comes to reminders, bugging you repeatedly until they're marked as completed.

Now, perhaps you do want Alexa to stay on your case about tasks, chores, or anything else you need to be reminded about. But if Alexa's repeated reminders about your reminders are driving you mad, give this a try.

1. Tap More, Settings, Reminders.

2. Scroll down and disable the "Always follow up" option to keep Alexa from bugging you about reminders that haven't been marked as completed.

3. While you're at it, you can reduce the number of times Alexa announces a reminder (the range is between one and three times).



Turning on Brief Mode minimizes Alexa's responses.

TURN ON BRIEF MODE

Even during everyday interactions, Alexa can be overly chatty, starting from the moment you say the "Alexa" wake word and through the completion of a given voice command ("Your lights are off now").

If you just want Alexa to do your bidding with a minimum of fuss, you can give this setting a shot.

1. Tap More, Settings, Voice Responses.
2. Enable Brief Mode.

Now Alexa should be much quieter when obeying your commands, acknowledging the completion of most tasks with a simple beep.

KEEP "BY THE WAY" AT BAY

So, if you thought that Brief Mode would put a stop to Alexa's "by the way" asides, you'll have to think again.

Even with the Brief Mode setting enabled, "by the way" will still manage to crop up every so often, typically after you've asked Alexa to perform a task.

The bad news is that there's no Alexa setting that reliably banishes the "by the way" digressions for good. The good news is that an Alexa hack discovered by Reddit users ([fave.co/4dNygbf](https://www.reddit.com/r/Alexa/comments/4dNygbf/)) can help keep "by the way" at bay.

The hack (which, as noted, comes from Reddit, by way of AFTVnews; [fave.co/4drueWI](https://www.reddit.com/r/Alexa/comments/4drueWI/)) involves simply telling Alexa to "stop By the Way." Easy—except Alexa will only stop the "by the ways" temporarily.

A more permanent solution is to create a routine that issues the "stop By the Way" command every day.

1. Tap More, Routines, then tap the plus-sign (+) button in the top-right corner.
2. Go ahead and name the routine (maybe "Stop by the way"), then add a triggering event, such as a given time each day (Schedule, At Time).

3. Then add an action. For this, tap Custom, then type "stop by the way."

Now Alexa will remind herself each day to stop "by the way," and hopefully your "by the way" days should be over. 🔌

**If you are
anywhere
in your
journey with
substance
use disorder,**

I want you to stop,
look around
and open your heart.

Revel in the abundance
of your existence.
See how small
substance use disorder
can be when sat next
to all that you are
or ever could be.

Fill your existence
with beauty, purpose
and a life of service.

And your substance
use disorder—
your history of
addiction,
the things you
may have done
that you are not
proud of—will one day
be small enough
to deal with
while allowing you
space to live this life
of joy.

Hold on.

We are not the sum
of our scars but rather
a beautiful mosaic of the
life they hold together.

—Joseph
Washington, DC
In recovery from
substance use
disorder

**Learn how
substance use
recovery can**

StartWithHope.com



Tech Spotlight

A video showcase
of the latest trends



Ryzen AI 9 HX 370 deep-dive testing

➡ AMD's latest laptop processors are purpose-built for AI tasks—but Ryzen AI 300 improves performance in standard tasks, too. This deep-dive review from Gordon Mah Ung gets into all the nitty-gritty details you need to know.